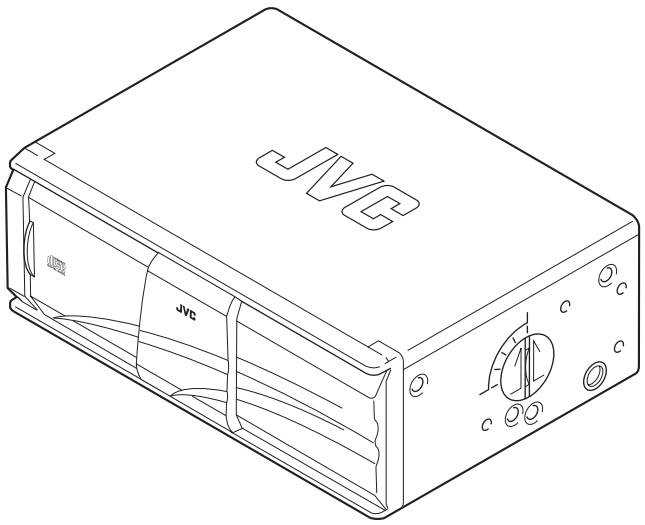
JVC

SERVICE MANUAL

CD CHANGER

CH-X1500



COMPACT disc DIGITAL AUDIO TEXT

MP3

CD-RW PLAYBACK

Area Suffix

J ·····Northern America
E·····Continental Europe
U·····Other Areas

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No.49776
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SECTION 1
Important Safety Precautions

1.1 Safety Precautions

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

⚠ ***CAUTION*** **This unit can only be connected to the JVC car receivers/controllers equipped with MP3-CD changer control functions. If connected to any other receiver/controller, this unit cannot work (even CDs may not play back).**

1.2 Preventing static electricity

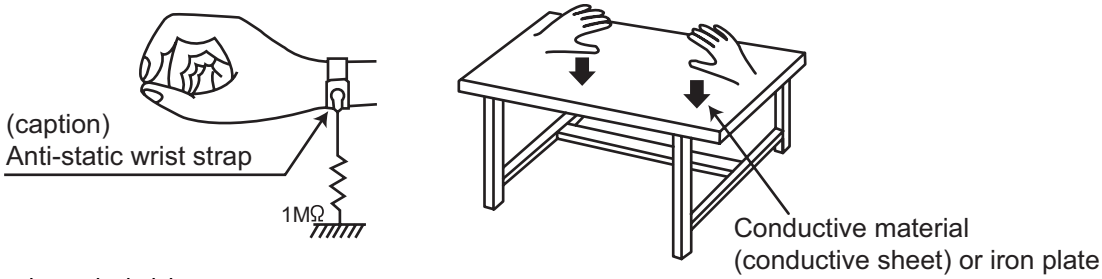
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.2.1 Grounding to prevent damage by static electricity

Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

(1) Ground the workbench
Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

(2) Ground yourself
Use an anti-static wrist strap to release any static electricity built up in your body.



(3) Handling the optical pickup
- In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
- Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

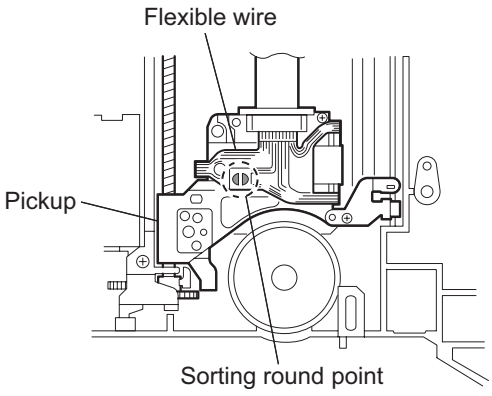
1.3 Handling the traverse unit (optical pickup)

(1) Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.
(2) Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.
(3) Handle the flexible cable carefully as it may break when subjected to strong force.
(4) I t is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it.

1.4 Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for the CD pickup unit.**

- Apply solder to the short land before the flexible wire is disconnected from the connector on the CD pickup unit. (If the flexible wire is disconnected without applying solder, the CDpickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short land after connecting the flexible wire.



SECTION 2
Disassembly method

Perform operations according to the items to be disassembled.

2.1 Replacement of the Pickup

(1) After removing the exterior (top and bottom).
(2) Proceed to the "2.5.8.Pickup replacement procedure" section.
(3) When applying grease, refer to the Exploded View. Use new grease.

2.2 Mechanism Section

(1) Remove the exterior (required section only).
(2) The mechanism section is designed so that each unit can be removed separately.
(3) When reassembling, refer to 2-5.Precautions reassembling. (Use new grease when applying grease.)

2.3 Exterior Section

2.3.1 Removing the bottom cover and front panel assembly (See fig.1~4)

(1) Remove the screw **A** to unlock the mounting direction knob located on the side of the main unit.
(2) Turn the mounting direction knob in the direction of the arrow using a coin, etc. to remove it. (The knob can be removed only when it is set to this position.)
(3) Remove the four screws **B** attaching the bottom cover on both sides of the main unit.
(4) Turn the unit upside down so the bottom surface is facing upward.
(5) Lift the rear edge of the bottom cover slightly and lift the side by grasping the DIN jack section on the side panel, then turn it toward the front (raise upward) to remove the bottom cover.
(6) Release the four joints on both sides of the front panel, and turn the front panel toward the top cover (lower down) to remove the front panel.

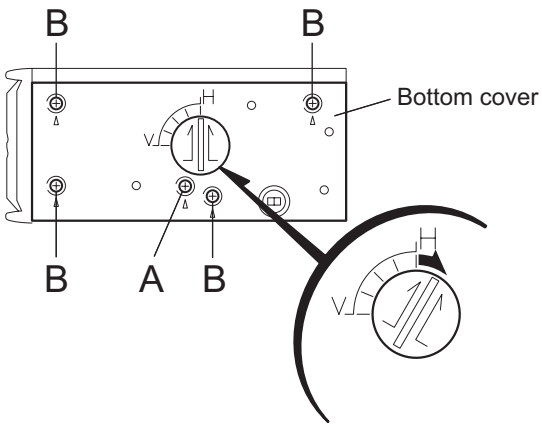


Fig.1

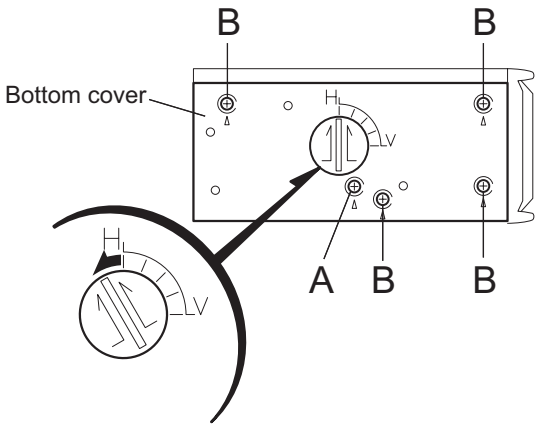


Fig.2

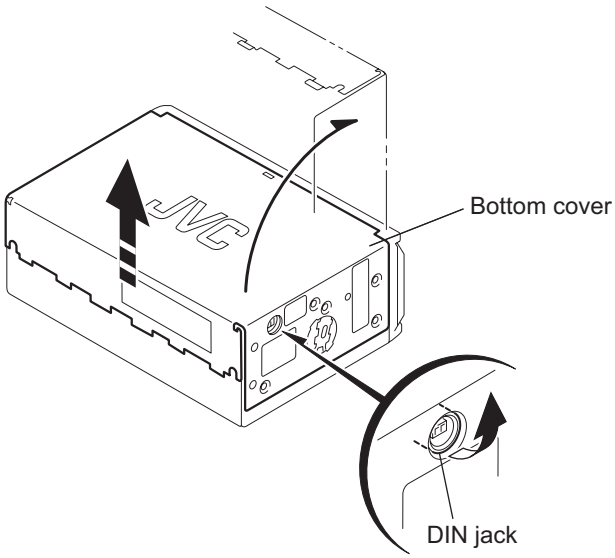


Fig.3

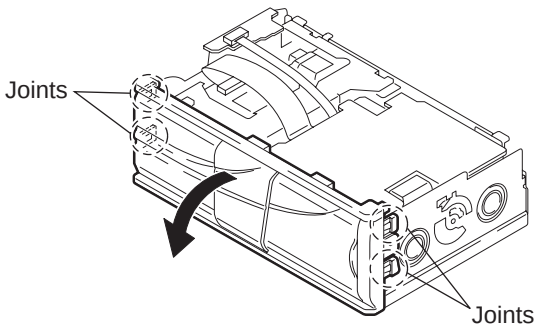


Fig.4

2.3.2 Removing the top cover (See fig.5~9)

(1) Pull out the dampers, being careful not to damage them.

REFERNCE:

When reattaching a damper, insert your finger to push out the center of the damper to mount it on the damper shaft, as shown in Fig. 6-1.

(2) Turn the damper spring bracket toward the top at a right angle as shown in Fig. 7, then push down the lower side of the damper spring bracket to lift it off.

(3) Remove the three screws **C** and **D** attaching the DIN jack board assembly, and remove.

(4) Lift the changer unit upward.

(5) Remove the damper springs from the mechanism chassis if required.

REFERENCE:

To reassemble, refer to the diagram below.

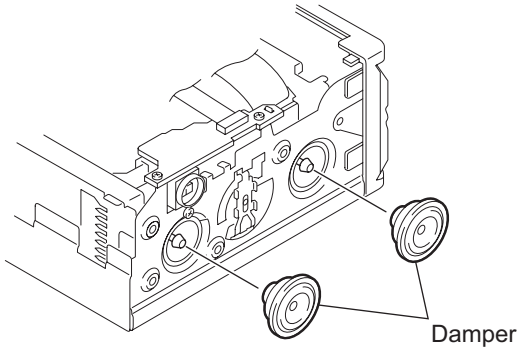


Fig.5

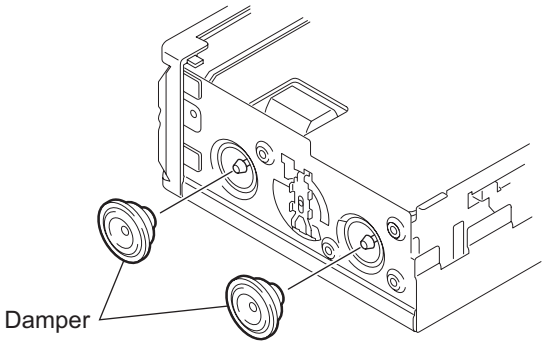
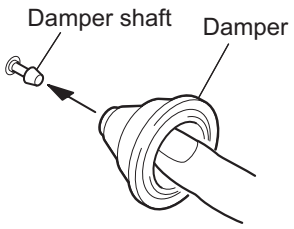


Fig.6

Apply alcohol to the shaft then immediately attach the damper. (After attaching, check that the shaft is correctly inserted.)



Push out with your finger before attaching

Fig.6-1

Turn to the top position (at a right angle) ,then the push down to lift off.

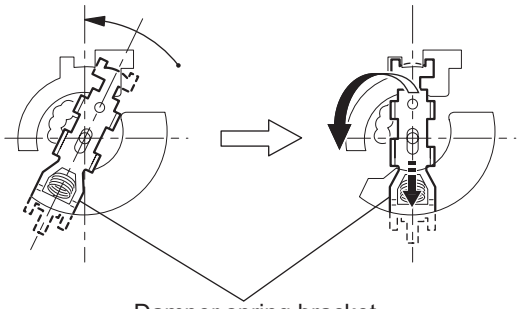


Fig.7

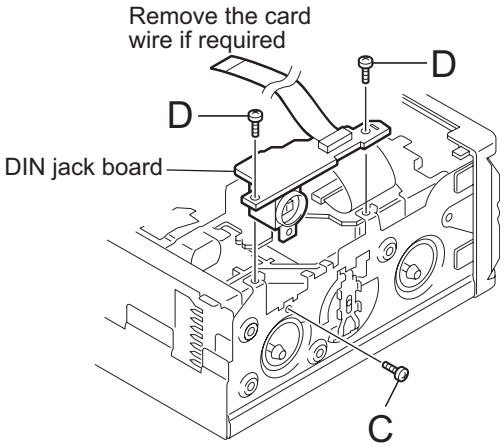


Fig.8

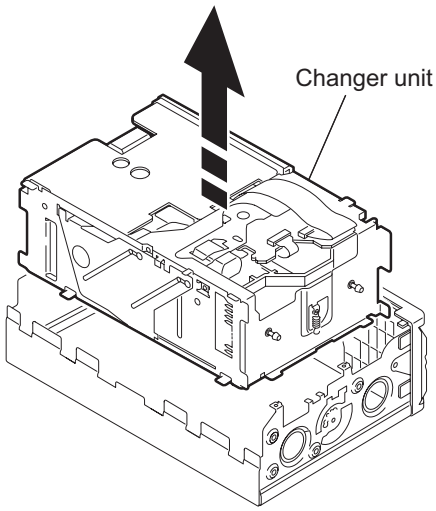


Fig.9

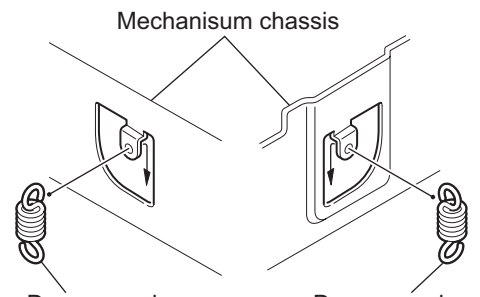


Fig.9-1

2.3.3 Removing the fitting (See fig.10)

(1) Remove the screw **E** attaching the fitting.
(2) Release the two joints **a** on the top edge of the fitting, then release the joints **b** at the left / right bottom edges, and remove.

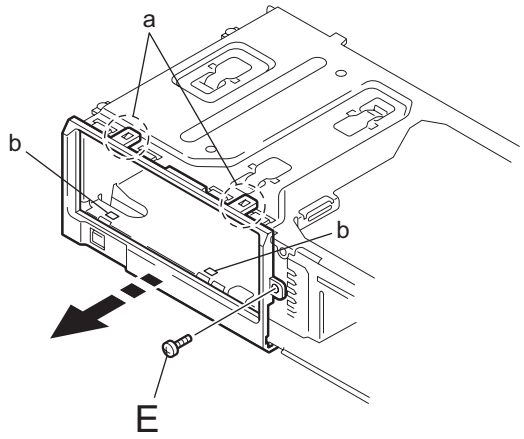


Fig.10

2.3.4 Removing the main board assembly (See fig.11)

(1) Remove the screw **F** attaching the power IC.
(2) Remove the four screws **G** attaching the main board assembly, and remove.
(3) Disconnect the wire from connector CN602 on the main board assembly.
(4) Disconnect the wire from connector CN501 on the main board assembly.
(5) Disconnect the card wire from connector CN604 on the traverse mechanism board assembly.

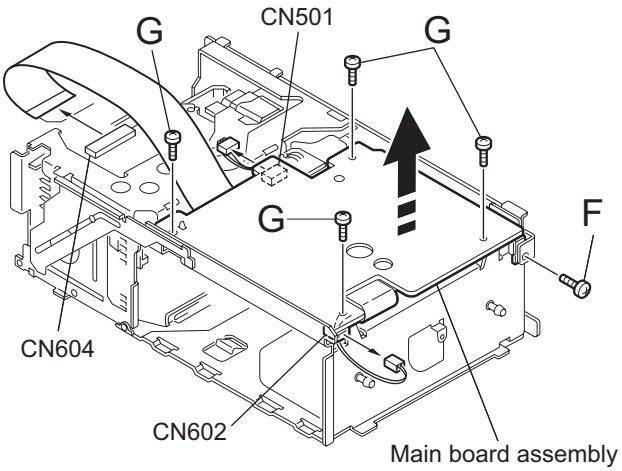


Fig.11

2.4 Changer-mechanism section

2.4.1 Remove the sensor assembly unit (See fig.12)

(1) Remove the two screws **H** attaching the sensor assembly unit.
(2) Release the springs on the back of the sensor assembly unit from the holes on the chassis.

2.4.2 Remove the magazine lock arm (See fig.12,13)

(1) Remove the magazine lock spring from the front side of the chassis.
(2) Remove the poly-washer attaching the magazine lock arm.
(3) Turn the magazine lock arm in the direction of the arrow until the notch is at the **c** position to remove it from the chassis.

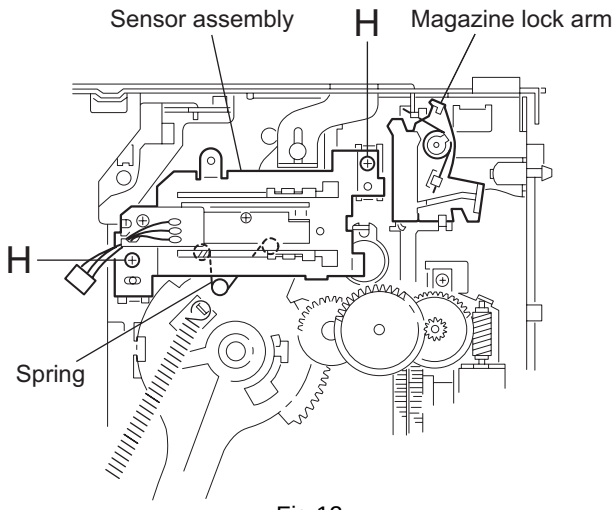


Fig.12

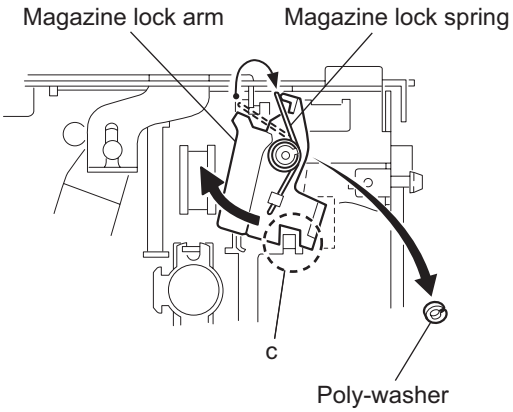


Fig.13

2.4.3 Remove the positioning motor assembly (See fig.14)

(1) Remove the two screws **I** attaching the positioning motor.

ATTENTION:
When removing the positioning motor assembly from chassis, remove the spacer attaching the wires.

(2) Slightly lift the positioning motor assembly to remove it from the two burrs on the chassis.

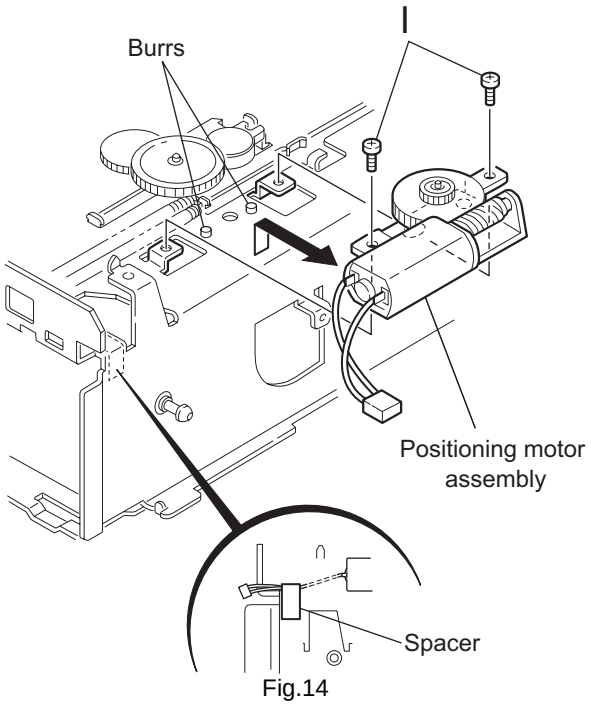


Fig.14

2.4.4 Remove the rear slider (See fig.15)

(1) Position the unit with the front section facing down. Rotate the third gear located on the back of the main unit in the direction of the arrow (clockwise).

(2) Move the rear slider in the direction of the arrow and remove it at the rear slider mounting position (at the widest hole).

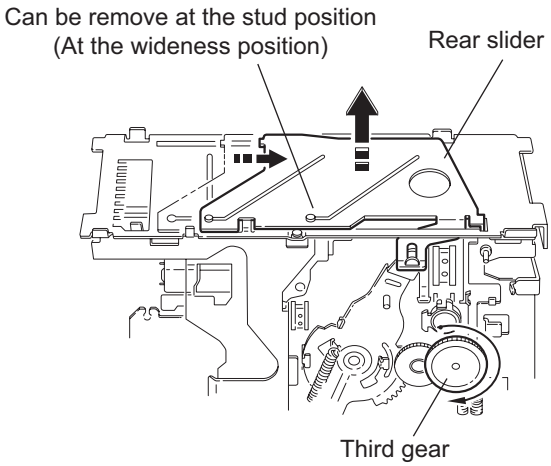


Fig.15

2.4.5 Remove the front slider (See fig.16)

(1) Position the unit with the rear section facing down. Rotate the third gear located on the bottom of the unit in the direction of the arrow (clockwise) until the front slider is moved to the outermost position.

(2) Remove the E-washer attaching the front slider, and remove from the chassis.

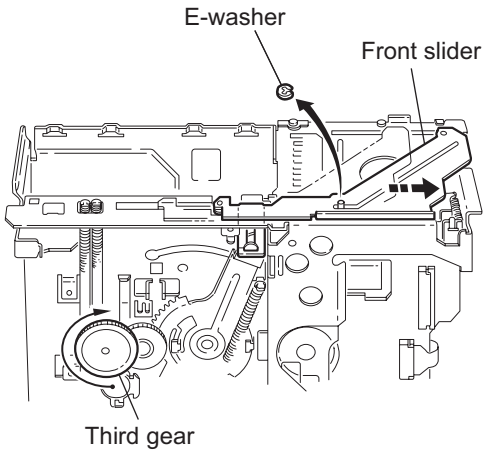


Fig.16

2.4.6 Remove the top plate (See fig.17,18)

(1) Remove the nine screws **J** attaching the top plate.
(2) Disconnect the section **d** attached to the rear of the unit, then lift the top plate slightly.
(3) Move the top plate toward the rear of the unit to remove the upper rod from the top plate.

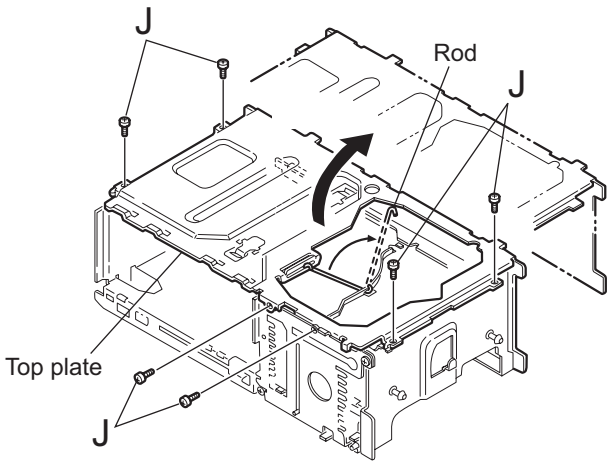


Fig.17

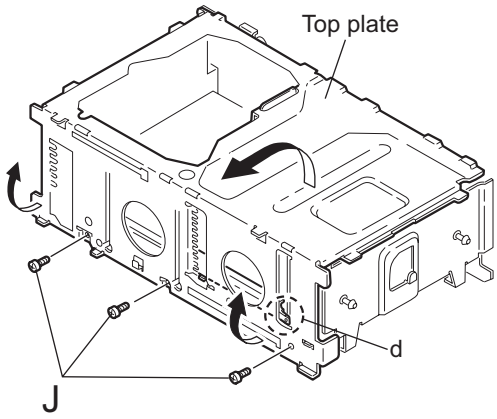


Fig.18

2.4.7 Remove the lifter unit (See fig.19,20)

(1) Remove the elevator spring located on the front side of the unit. (Be sure to first remove the spring from the lifter side as shown in the upper part of the diagram.)

(2) Lift the lifter unit upward, then remove the lower rod to remove the lifter unit from the chassis.

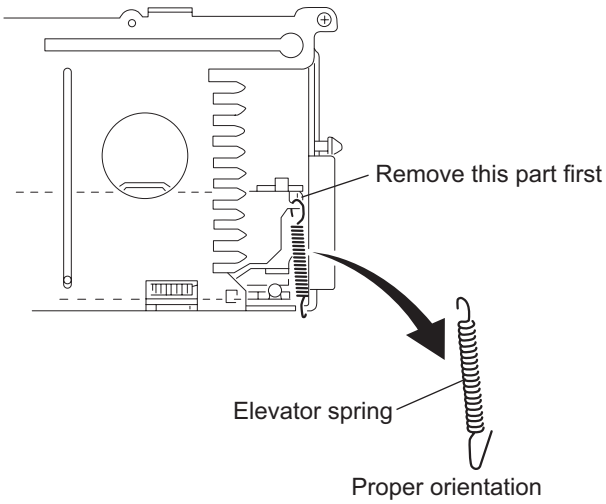


Fig.19

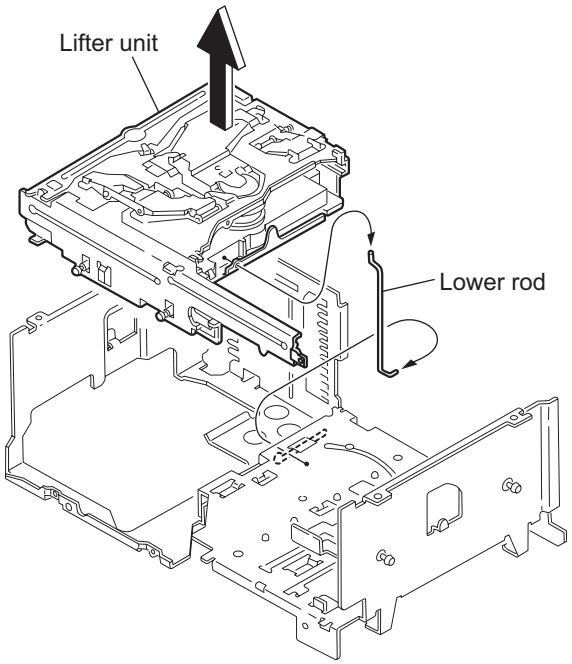


Fig.20

2.4.8 Remove the lifter bracket (See fig.21)

(1) Remove the two screws **K** attaching the lifter bracket from the back of the lifter unit.
(2) Remove the lower rod.

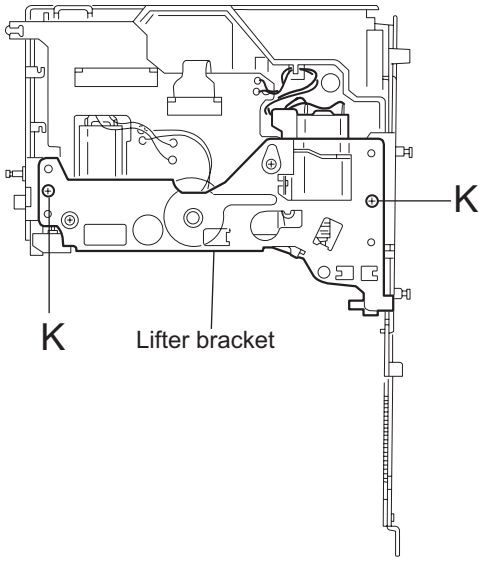


Fig.21

2.4.9 Remove the side bracket and traverse mechanism assenbly (See fig.22)

(1) Remove the two screws **L** attaching the side bracket, and remove the side bracket.
(2) Remove the three shafts on the traverse mechanism assembly from the lifter unit.

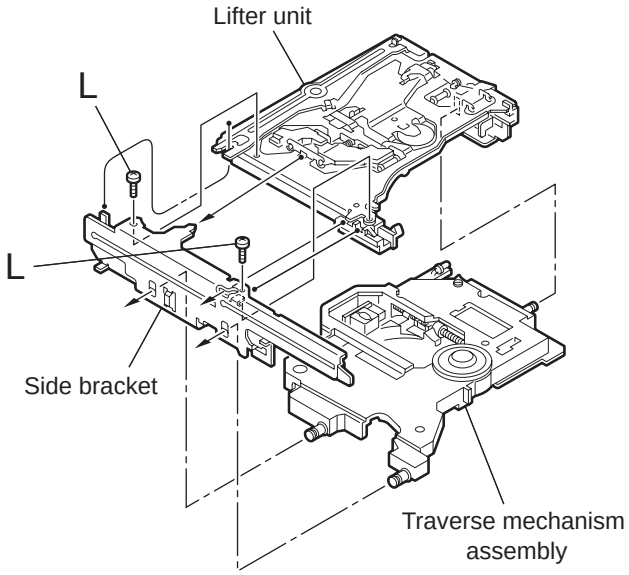


Fig.22

2.4.10 Remove the pickup assembly (See fig.23~26)

CAUTION:

When replacing the flexible wire connected, solder the shorting round point. Otherwise, the pickup may be damaged.

(1) Remove the three screws **M** attaching the mechanism board on the back of the traverse mechanism assembly.
(2) Disconnect the two feed motor wires (blue and white), two spindle motor wires (red and black) and two tray motor wires (brown and black) that are soldered to the mechanism board assembly.
(3) Move and lift mechanism board assembly with the flexible wire attached to connector CN603. Next, solder the sorting round point on the pickup assembly and then disconnect CN603.
(4) Remove the screw **N** attaching the feed motor assembly, and remove.
(5) Remove the screw **O** attaching the shaft holder retaining the feed slide shaft assembly and the middle gear, and remove.
(6) Remove the middle gear.

REFERENCE:

Remove gears and motors only when required.

(7) Move the pickup assembly upward from the gear section and remove it from the traverse chassis assembly.
(8) Remove the two screws **P** attaching the rack arm, and remove.
(9) Pull out the feed slide shaft assembly, and remove.
(10) Remove the screw **Q** attaching the spring, and remove.

CAUTION:

When reassembling, connect the flexible wire from the pickup to the main board and unsolder the shorting round point.

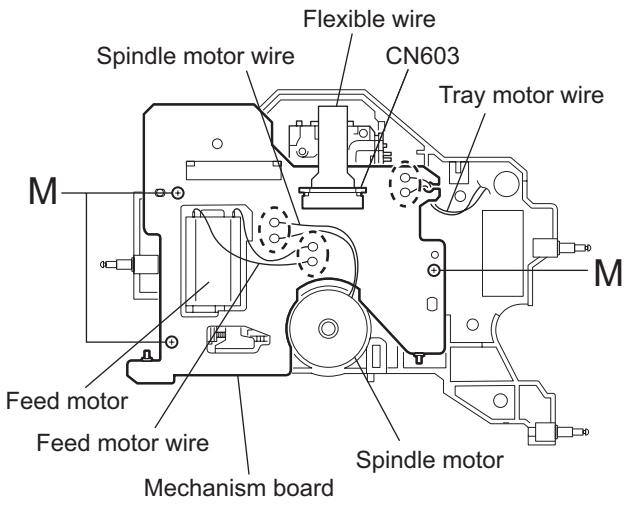


Fig.23

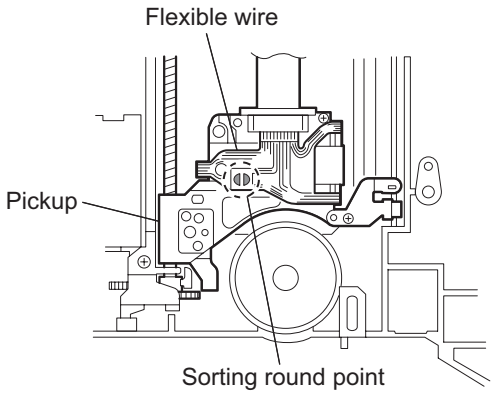


Fig.24

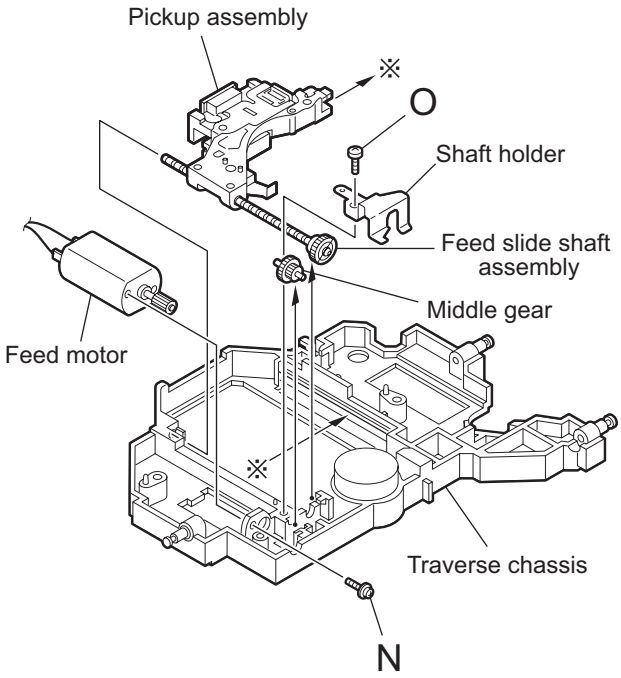


Fig.25

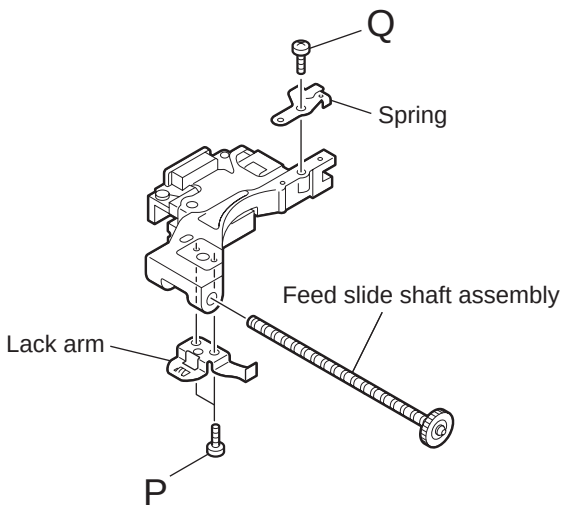


Fig.26

2.4.11 Removing the tray motor assembly (See fig.27, 28)

(1) Remove the two screws **R** attaching the tray motor assembly, and remove.
(2) Remove the two screws **S** attaching the tray motor, and remove the tray motor assembly from the tray motor holder.

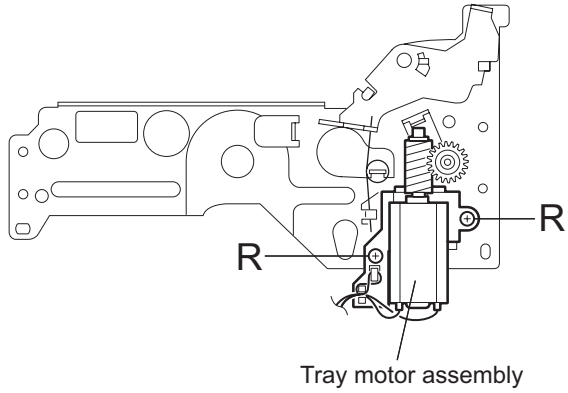


Fig.27

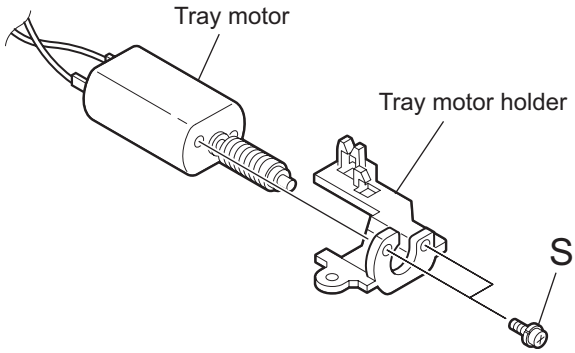


Fig.28

2.4.12 Separation of the chassis (L) assembly and chassis (R) assembly (See fig.29)

(1) Remove the two screws **T** retaining the chassis **(L)** and **(R)** assemblies.
(2) Slide the chassis **(L)** assembly toward the front and detach it, then remove the chassis **(L)** upward.

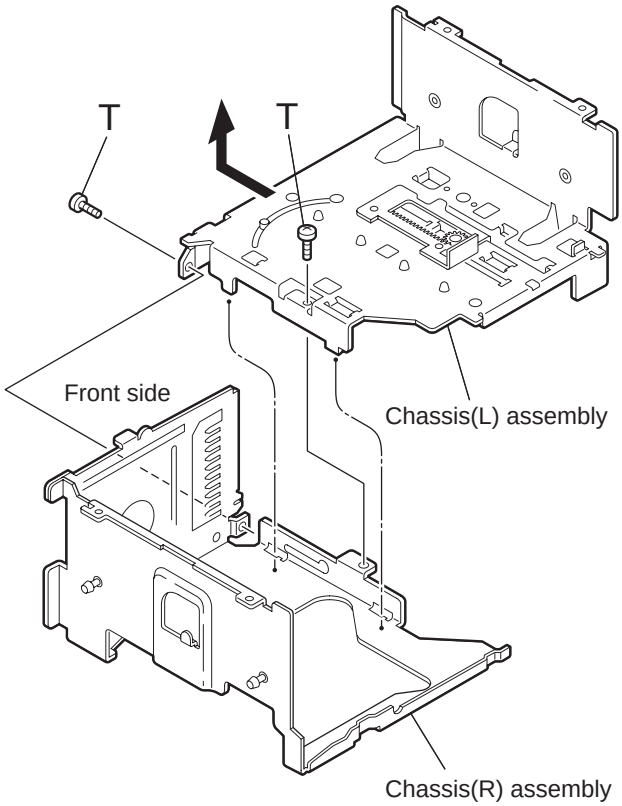


Fig.29

2.5 Precautions reassembling

REFERENCE:

When reassembling, also refer to the disassembling procedures.

2.5.1 Mounting the traverse mechanism assembly (See fig.30~34)

(1) When mounting the pickup assembly, attach the feed slide shaft assembly to the traverse chassis. Apply E-JC-525 grease to the shaft.

(2) Mount the middle gear and the feed slide shaft to the traverse chassis and secure them with the screw **O** through the shaft holder.

(3) Before attaching the mechanism board, move the pickup to the outer edge position, then attach the mechanism board using the screw **M**. At this time, check that the rest switch is correctly placed.

(4) To mount the rack arm, first move the pickup to the middle position and fixing it with the screw **P**.

CAUTION:

When reassembling the mechanism board, reattach the flexible wire to connector CN603 on the mechanism board, and then unsolder the sorting round point. Next, reattach the mechanism board with screw **M**.

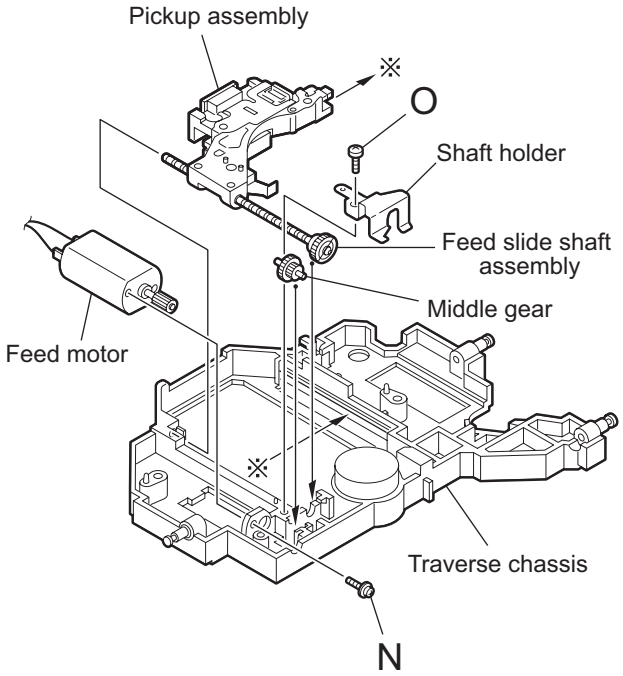


Fig.30

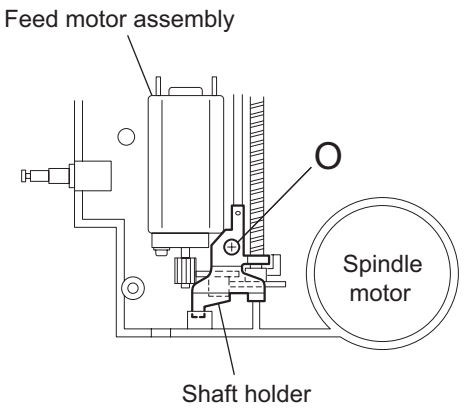


Fig.31

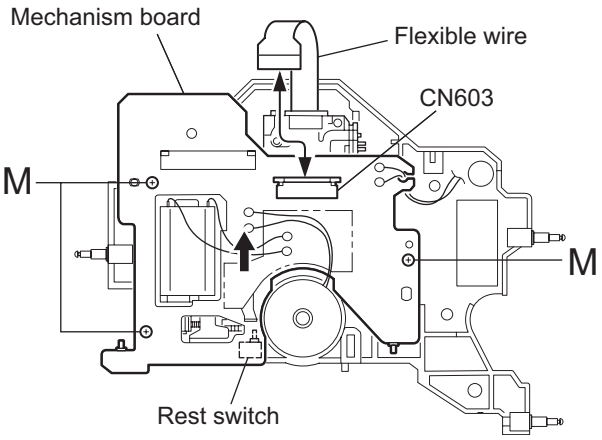


Fig.32

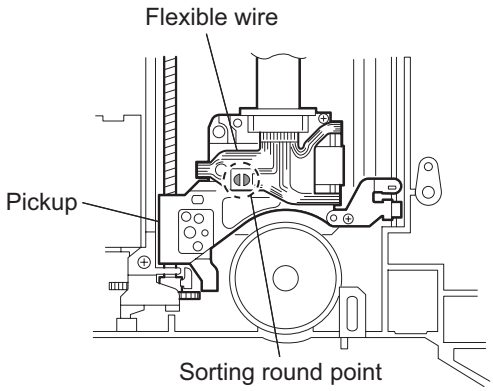


Fig.33

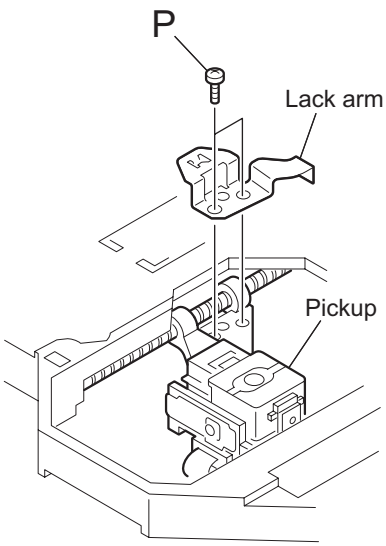


Fig.34

2.5.2 Mounting the lifter unit (See fig.35~37)

(1) Insert the shafts **e** of the traverse mechanism assembly into the slide grooves **f** on the lifter unit.

(2) Move the hook of the lifter unit to the edge, and move the sliding lever inside the side bracket unit to the edge as well.

(3) With each hole and lever shifted to the edge, mount the lifter unit and side bracket unit from the side. (Check each attached section, and check that the joint g of the lifter unit is correctly inserted into the holes **h** of the side bracket unit. After reassembled, check that levers move together.)

(4) Turn the lifter unit upside down.
As shown in Fig. 37, slide the lever 30 mm away from the edge, and then mount the lifter bracket **(L)** assembly.

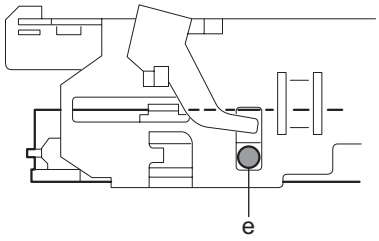


Fig.35

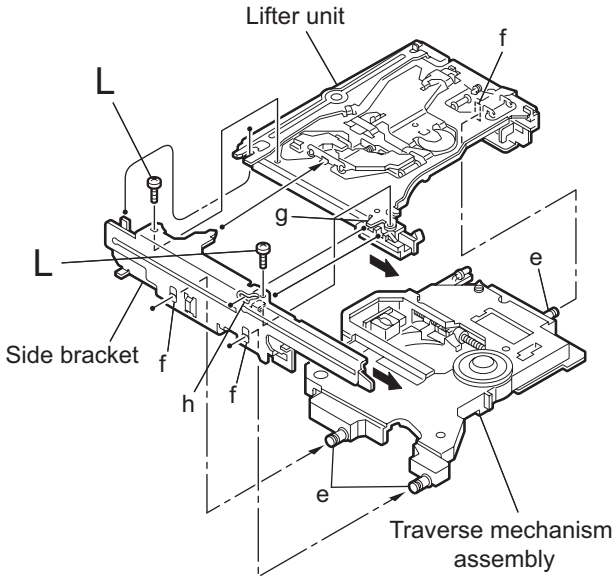


Fig.36

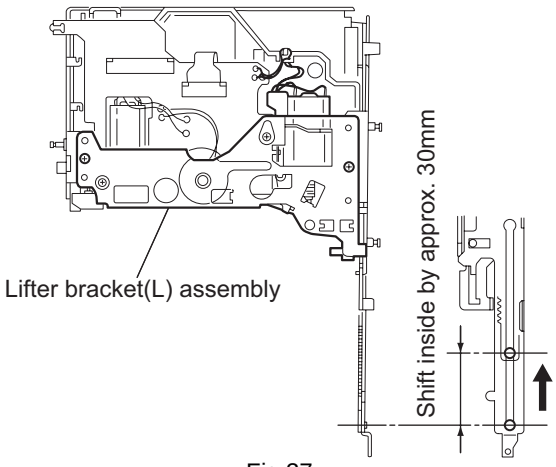


Fig.37

2.5.3 Mounting the chassis (L) assembly and chassis (R) assembly (See fig.38~40)

(1) Attach the lower rod to the chassis **(R)** assembly. While shifting the rod toward the front side, mount the rod on the lifter unit.
With the rod mounted, place the lifter unit on the chassis **(R)** assembly.

(2) Combine the chassis **(L)** and **(R)** assemblies so that the hook section **i** of the chassis **(L)** assembly is inserted into the notch of the chassis **(R)** assembly by sliding it from the front side, and then the two lib **j** jointed to the chassis **(L)** assembly.

(3) After reassembled, fix with the screw **T**.

(4) Attach the elevator spring between the lifter unit and the chassis.

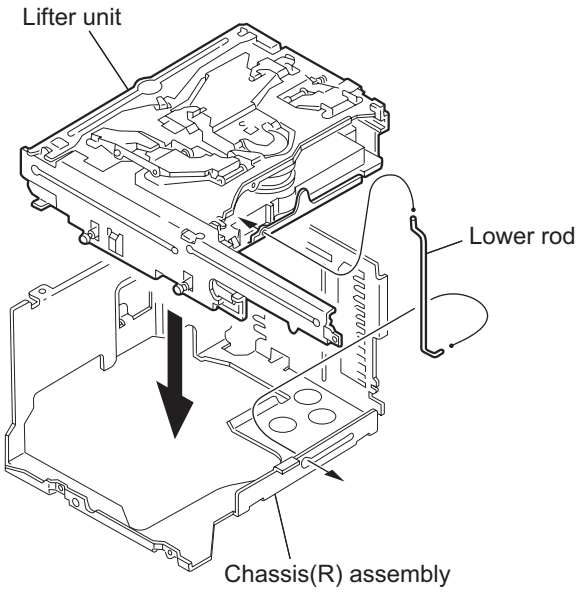


Fig.38

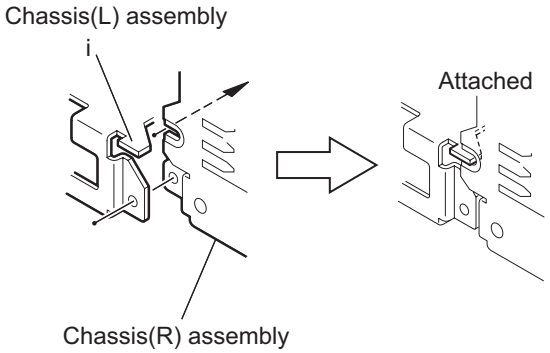


Fig.39

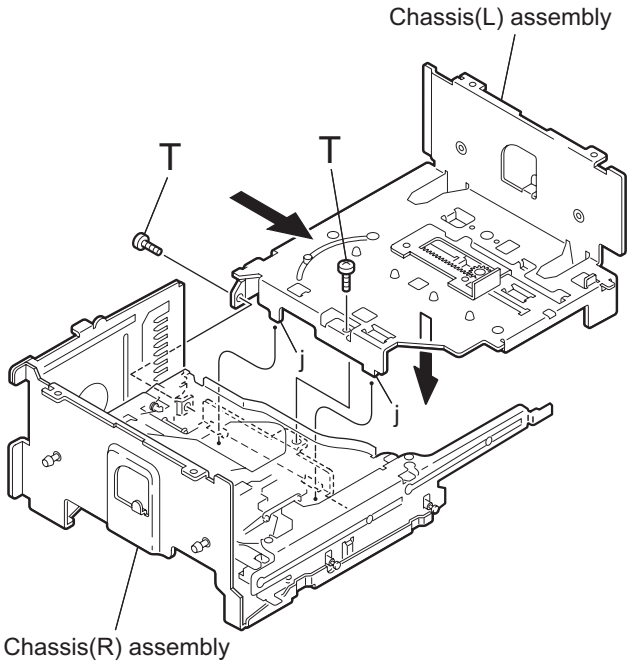


Fig.40

2.5.4 Mounting top plate (See fig.41~44)

(1) Mount the upper rod on the lifter side and set it on the rear of the top plate, then mount the other end of the upper rod to **k** .

(2) Check that the five points **l**, **m**, **n**, **o** and **p** are correctly positioned.
When mounting section **p**, set it so that the bending section of the top plate pinches section **q** of the lifter unit.

(3) Attach the top plate with six screws **J**.

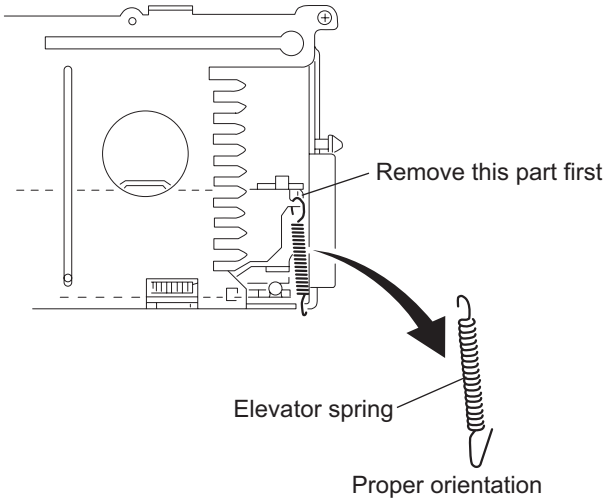


Fig.41

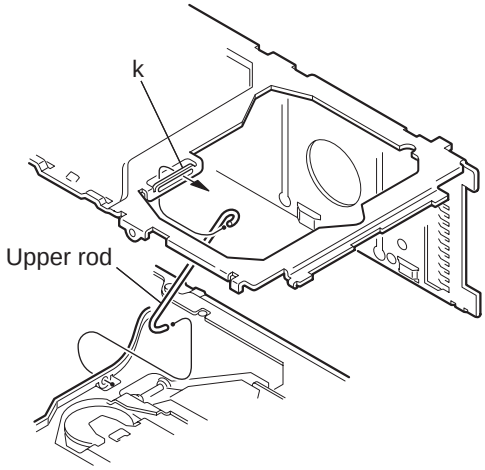


Fig.42

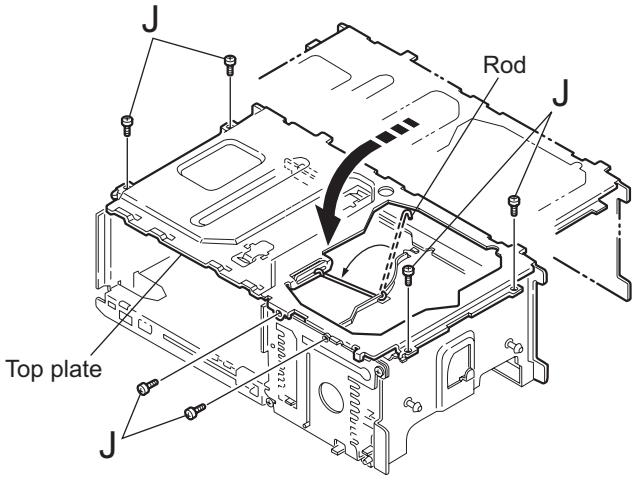


Fig.43

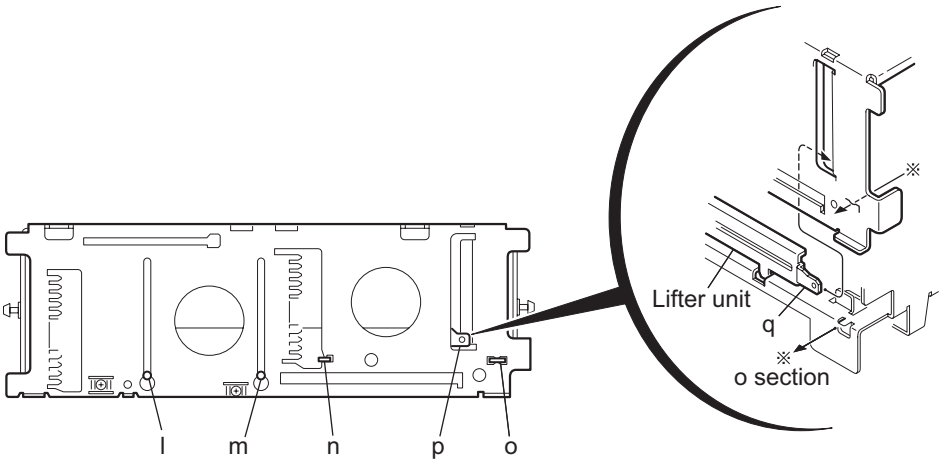
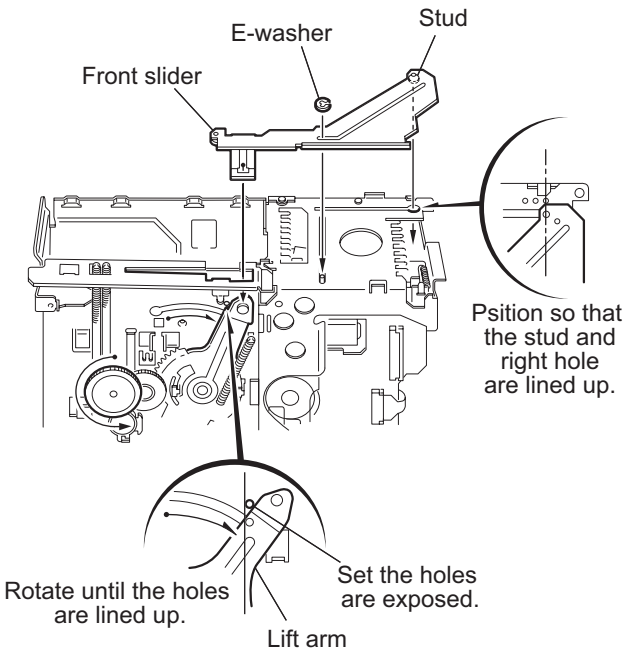


Fig.44

2.5.5 Mounting the front slider and rear slider (See fig.45, 46)

(1) Position the unit with the rear side facing down, then rotate the third gear in the direction of the arrow (clockwise) until the lift arm comes to the position at which the holes are exposed.
(2) Mount the front slider from the top.
Rotate the third gear counterclockwise until the hole of the slider is lined up with the right hole of the stud.
(3) Attach the E-washer on the shaft.
(4) Position the unit with the front side facing down, then mount the rear slider.
Check that the **r**, **s** and t positions are correctly mounted as shown in Fig. 46.
(5) Rotate the third gear in the direction of the arrow (counterclockwise) until the lifter unit is at the top position.


Stud
E-washer
Front slider
Psition so that the stud and right hole are lined up.
Rotate until the holes are lined up.
Set the holes are exposed.
Lift arm
Fig.45

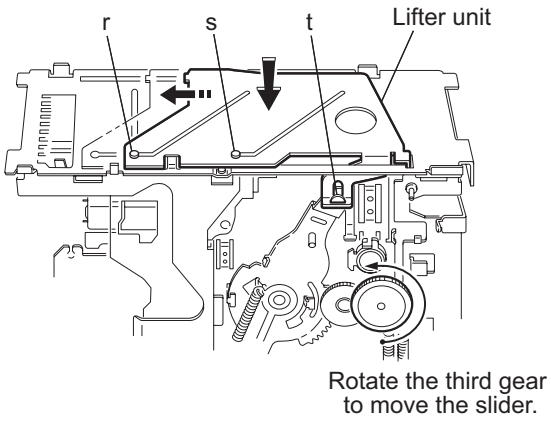


Fig.46

2.5.6 Mounting the sensor board assembly (See fig.47)

(1) Attach the longer spring to the white resin, and attach the shorter spring temporarily to the sensor assembly bracket.
(2) Mount the sensor assembly so that the shaft of the lift arm is inserted into the longer hole on the white resin located on the back of the sensor board assembly.
(3) Attach the shorter spring to the hook of the lift arm.

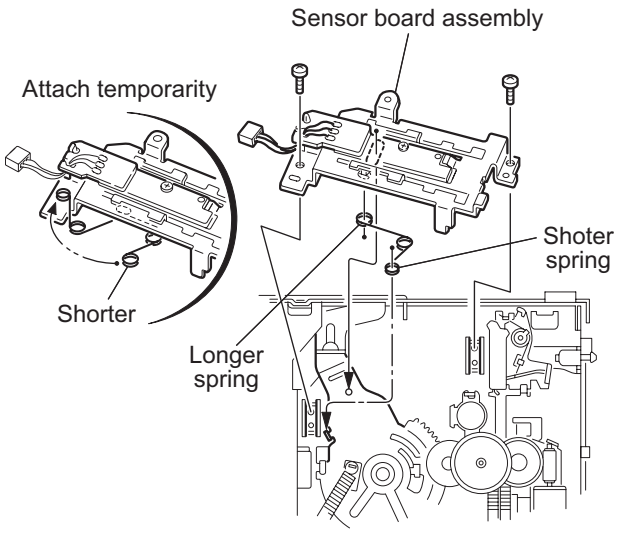


Fig.47

2.5.7 Mounting the main board (See fig.48)

(1) Rotate the third gear clockwise until section **u** of the front slider and the third hole from the right are lined up. (Be sure to set properly. If incorrectly set, the switches on the assembly may be damaged.)
(2) After they are correctly positioned, mount the main board assembly.

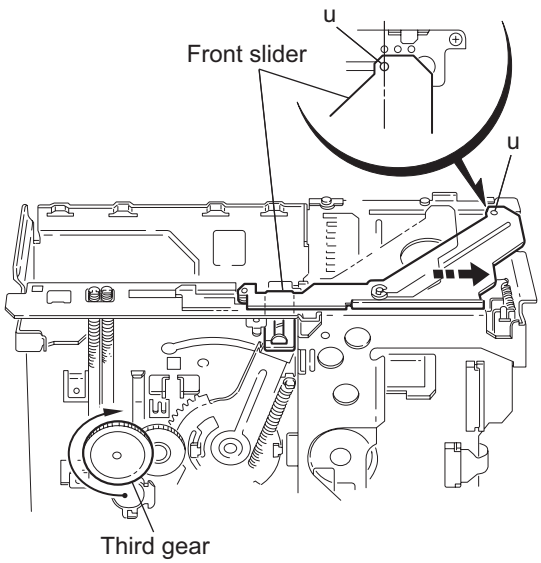


Fig.48

2.5.8 Pickup replacement procedure (See fig.49~55)

(1) Remove the bottom cover, front panel and top cover of the exterior section.
(2) Remove the card wire from the connector CN604 on the mechanism board.
(3) Rotate the rear slider and third gear in the lifter section counterclockwise and then the traverse mechanism assembly is move in the lowermost (bottom) position.
(4) Unsolder the two wires (black and brown) connected to the tray motor.
(5) Remove the two screws **K** from the round holes on the chassis **(R)** assembly to remove the lifter bracket **(L)**.
(6) Remove the lower rod.
(7) Unsolder the two wires (blue and white), two wires of spindle motor (red and black) and wire of tray motor (brown and black) soldered on the mechanism board.
(8) Solder the sorting round point on the pickup assembly to move the mechanism board and then unplug the flexible wire from CN603 on the mechanism board.
(9) Remove the flexible wire from the connector CN603 on the mechanism board.
(10) Remove the three screws **M** from the round hole on the chassis **(R)** assembly, and remove.
(11) Remove the screw **O** attaching pickup shaft holder, and remove the pickup assembly.

CAUTION:

When replacing the pickup, be sure to apply countermeasures against static electricity (grounding the operation table, wrist band and soldering iron). To remove it, first sorting round point on the mechanism board, then lift the mechanism board assembly with CN603 connected. Next, sorting round point on the pickup main unit, then unplug the pickup flexible board from connector CN603.

ATTENTION:

When reassembling, perform in the reverse order.

(12) Remove the two screws **P** attaching lack arm. Pull out the feed slide shaft assembly. Remove the screw **Q** attaching shaft holder.
(13) When mounting the lifter bracket after replacing the pickup, move the lifter unit lever approx. 30mm towards the inside and then mount the lifter bracket.

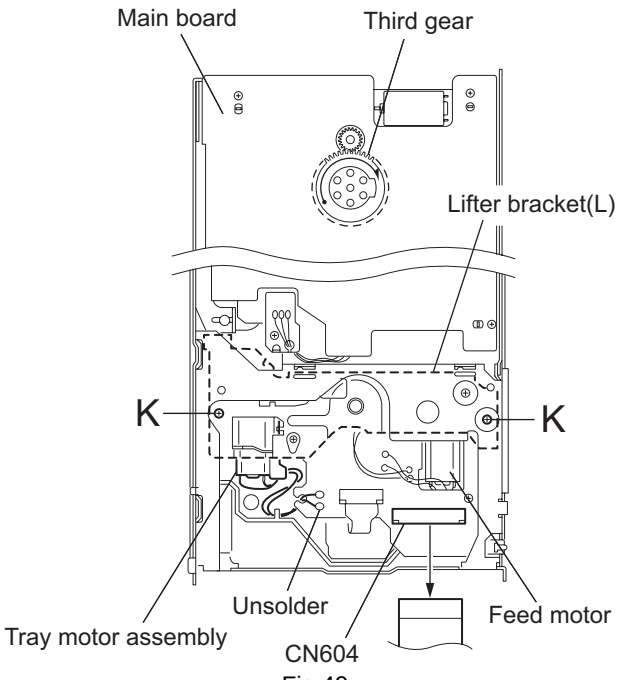


Fig.49

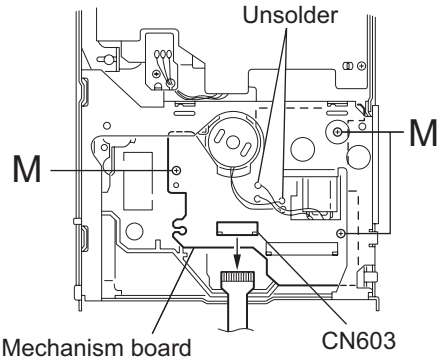


Fig.50

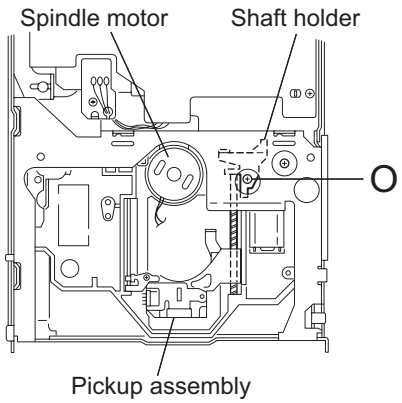


Fig.51

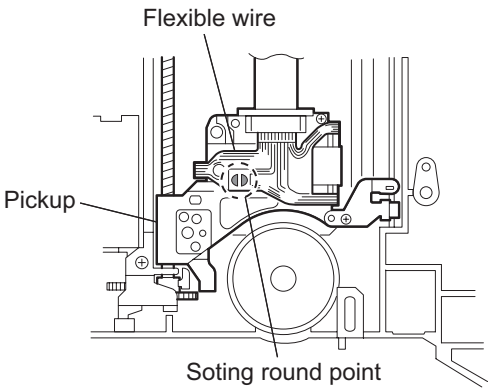


Fig.52

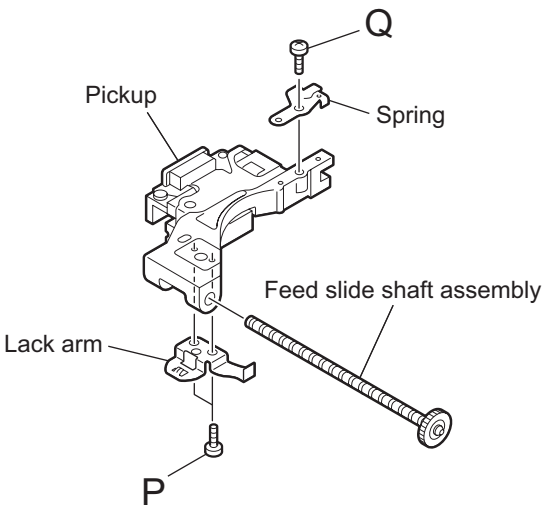


Fig.53

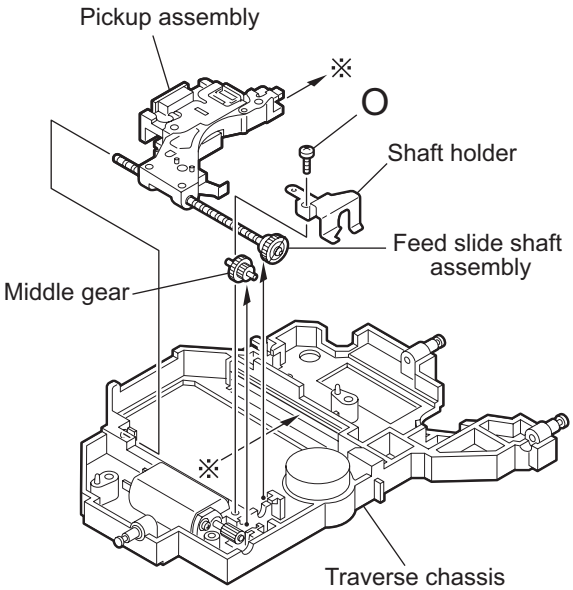

Pickup assembly
※
O
Shaft holder
Feed slide shaft assembly
Middle gear
※
Traverse chassis

Fig.54

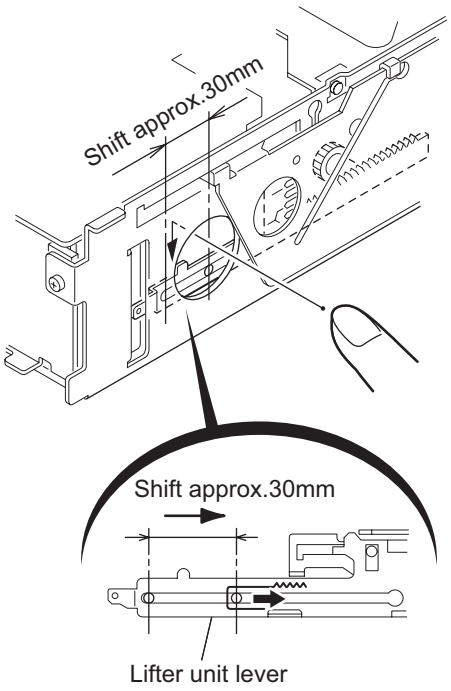
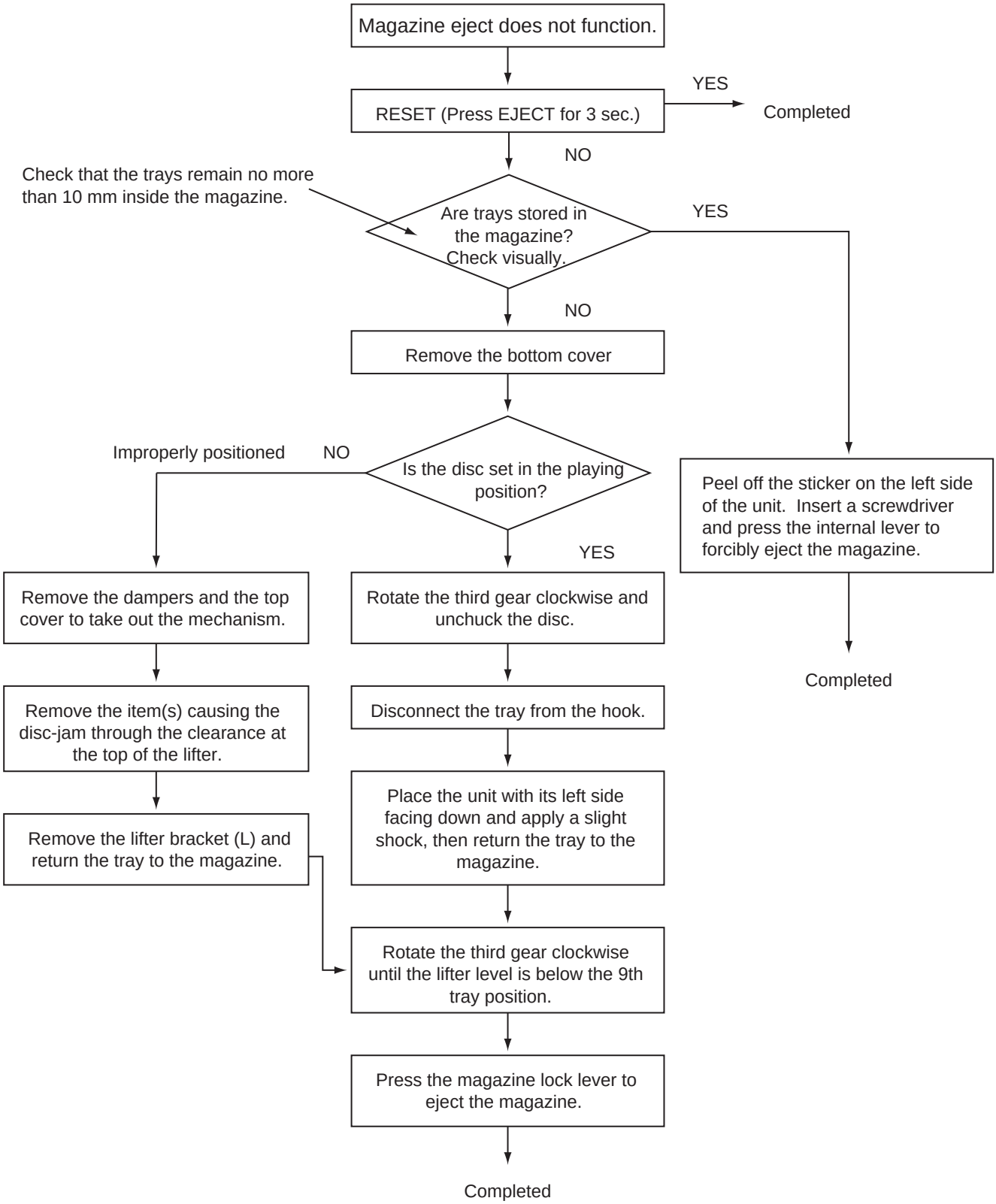

Shift approx.30mm
Shift approx.30mm
Lifter unit lever

Fig.55

SECTION 3
Adjustment method

3.1 Forced eject procedures


Magazine eject does not function.
RESET (Press EJECT for 3 sec.)
YES
Completed
NO
Check that the trays remain no more than 10 mm inside the magazine.
Are trays stored in the magazine? Check visually.
YES
NO
Remove the bottom cover
Improperly positioned
NO
Is the disc set in the playing position?
YES
Peel off the sticker on the left side of the unit. Insert a screwdriver and press the internal lever to forcibly eject the magazine.
Completed
Remove the dampers and the top cover to take out the mechanism.
Rotate the third gear clockwise and unchuck the disc.
Remove the item(s) causing the disc-jam through the clearance at the top of the lifter.
Disconnect the tray from the hook.
Remove the lifter bracket (L) and return the tray to the magazine.
Place the unit with its left side facing down and apply a slight shock, then return the tray to the magazine.
Rotate the third gear clockwise until the lifter level is below the 9th tray position.
Press the magazine lock lever to eject the magazine.
Completed

3.2 Troubleshooting

3.2.1 Servicing procedures for CH-X1500 error displays

Error display	Servicing procedure
E1: Eject error	The magazine cannot be ejected until S601 (magazine switch) turns off. Can the magazine be ejected? YES→1, NO→ 2 1 The magazine switch (S601) does not turn off even though the magazine is completely ejected. 2 Check that the magazine is not engaged with the mechanism assembly.
E2: Position motor error	The lifter does not move up and down when exchanging or ejecting discs. After resetting, check whether or not the lifter moves.YES→ 3, NO→4 3 If the lifter exceeds the required disc position, check the lift position input. (IC601 pin 76) If the lifter does not reach the required disc position, check the mechanism (mainly the lifter elevation mechanism) 4 Check that voltage is present at the motor terminal. If voltage is present, check the lifter elevation mechanism. If voltage is not present, separate the motor from the circuit and check again whether or not voltage is present. If voltage is present, next check that the armature resistance of the position motor (resistance between motor terminals) is approx. 12Ω . If the resistance is excessively low (1 - 2Ω), the motor is defective.
E3: Tray motor error	Trays cannot be opened or closed when exchanging or ejecting discs. Does the tray move when changing or ejecting discs?YES→5, NO→ 6 5 Check that TRAY OUT SW (S602) and TRAY IN SW (S603) function correctly.

	S602 & IC601 pin (46)	S603 & IC601 pin (45)
When opening	H	L
When closing	L	H

6 Check that the drive voltage is applied to the motor terminal.
If the voltage is present, check the tray mechanism.
If the voltage is not present, separate the motor from the circuit and check again whether or not the voltage is present.

E4: Pick returning error	Does the feed (pickup unit) return to the inner area of the disc when ejecting? YES→7, NO→8, 9 7 Check the rest switch. 8 If the feed gear is rotated, check the feed transfer mechanism 9 If the feed gear is not rotated, check the motor driver and the pattern.

Other errors occurring in the receiver or controller.

E8: Connection error	When selecting the CD Changer mode using function keys, etc., the unit does not enter the CD changer mode, or the E8 error display appears. This signifies trouble relating to communications. a Check the connection cables between the CD changer and the receiver (CD changer controller). b Check the CD changer power cord and the fuse (including F901 on the PC board). c Check IC651 and its peripheral circuits.

★ The E1 ~ E8 error displays described above may appear as E-1 ~ E-8, 1E1 ~1E8, R-1 ~ R-8, or RST1 ~ RST8, depending on the product.

3.2.2 CH-X1500 Error code

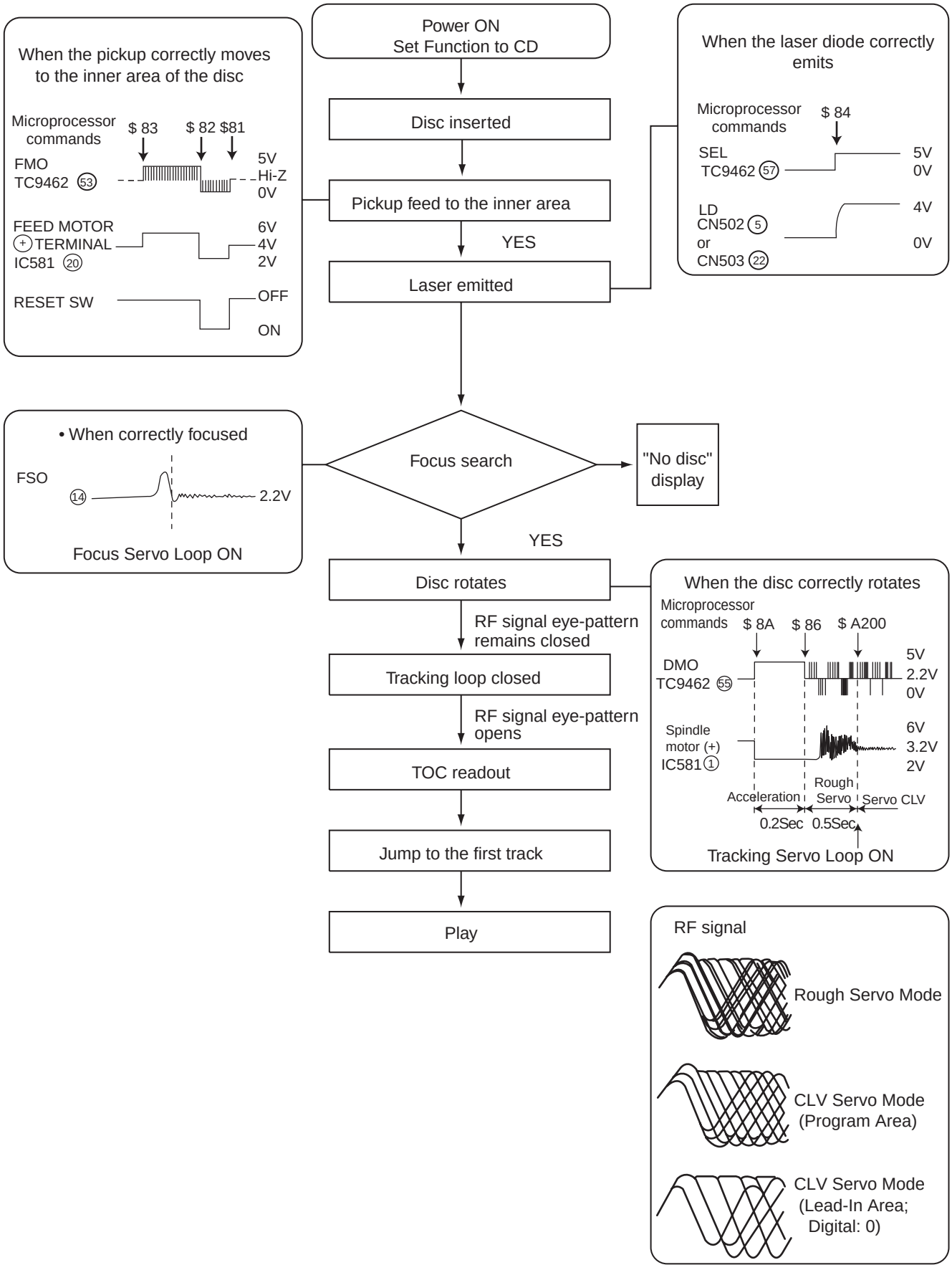
The following error codes can be displayed and stored in up to 3 memories when the KD-MX3000 is used with the controller. Refer to the KD-MX3000 service manual regarding error code indication.
The error code indication when using the earlier controller is the same as the CH-X99,KD-MK88 and other 12CD changer models.

CH-1 error code table

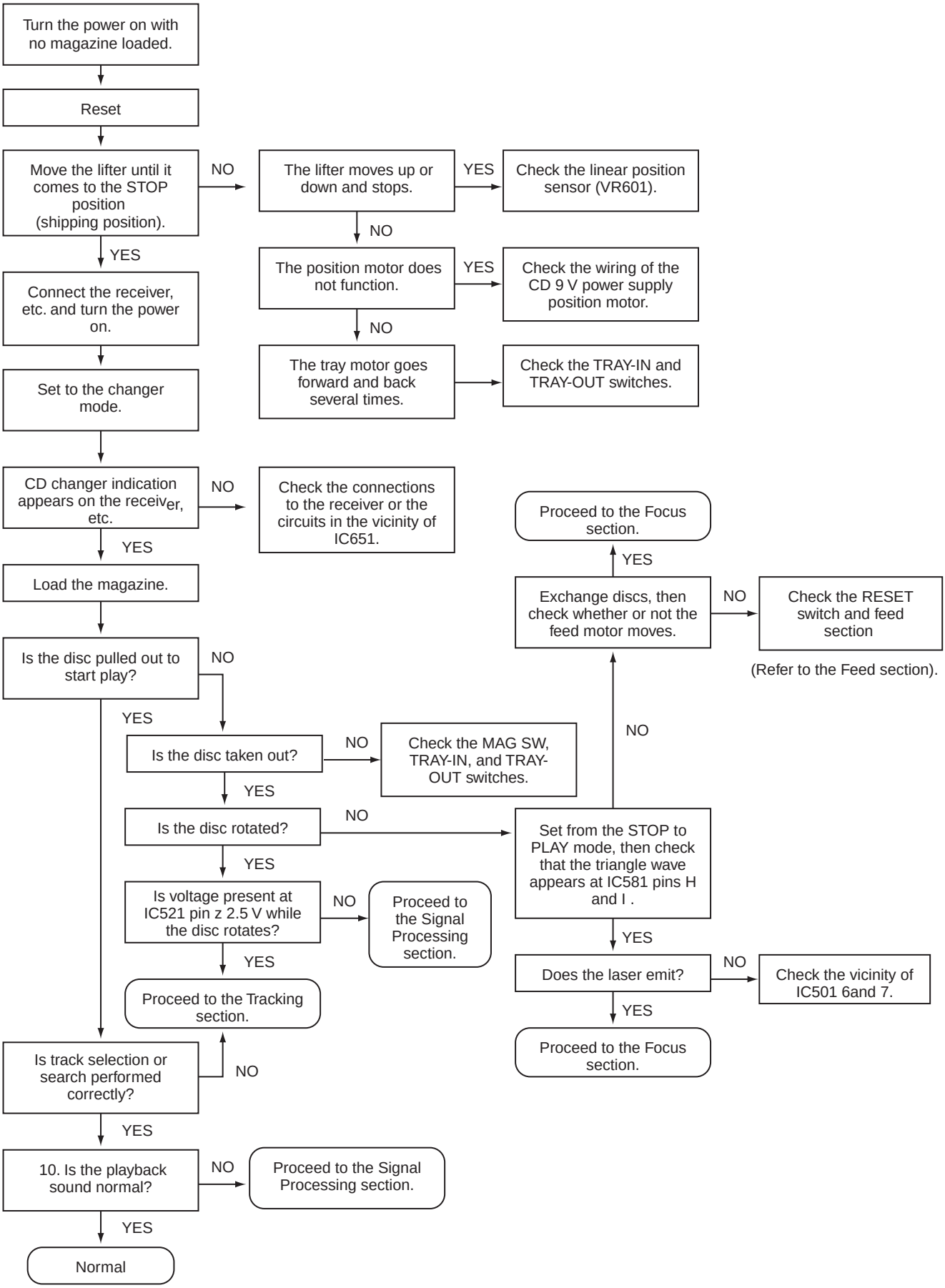
Generating condition		Description	Error code
Tray extension error	Tray-in switch time out (Tray-in switch Low Tray-out switch High)	Tray stops part way	E1 03 00 11
	Tray-out switch time out (Tray-in switch High Tray-out switch High)	Tray stops part way	E1 03 00 12
	Tray-in switch time out (Tray-in switch Low Tray-out switch Low)	Tray-in switch faulty or other defect	E1 03 00 13
	MAG-in switch Low to High	Magazine removed when tray partly extende	E1 03 00 14
Tray retraction error	Tray-in switch time out (Tray-in switch Low Tray-out switch Low)	Tray motor inoperative	E1 03 00 16
	Tray-out switch time out (Tray-in switch High Tray-out switch High)	Tray retraction stops part way	E1 03 00 17
	Tray-in switch time out (Tray-in switch Low Tray-out switch Low)	Tray-in switch faulty or other defect	E1 03 00 18
	MAG-in switch Low to High	Magazine removed when tray partly retracted	E1 03 00 19
Lifter raise error	Wait position time out	Position motor inoperative	E1 02 00 21
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 22
	Wait position time out	Other fault	E1 02 00 23
Lifter lower error	Wait position time out	Position motor inoperative	E1 02 00 26
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 27
	Wait position time out	Other fault	E1 02 00 28
Chuck error	Play position time out	Position motor inoperative	E1 02 00 31
	Play position time out	Position not stable in fine adjust mode	E1 02 00 32
	Play position time out	Other fault	E1 02 00 33
Unchuck error	Wait position time out	Position motor inoperative	E1 02 00 36
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 37
	Wait position time out	Other fault	E1 02 00 38
Eject error	Eject position time out	Position motor inoperative	E1 02 00 41
	Eject position time out	Eject position not attained	E1 02 00 42
	MAG in switch time out	Magazine not ejected	E1 02 00 43
Initialize error	Mechanism switch time out	Both Tray-in and Tray-out Low	E1 03 00 46
	Absolute position time out	Not stable at absolute position	E1 03 00 47

Note:
The 1st error code is indicated by E1, while the 2nd and 3rd error codes are respectively indicated by E2 and E3.

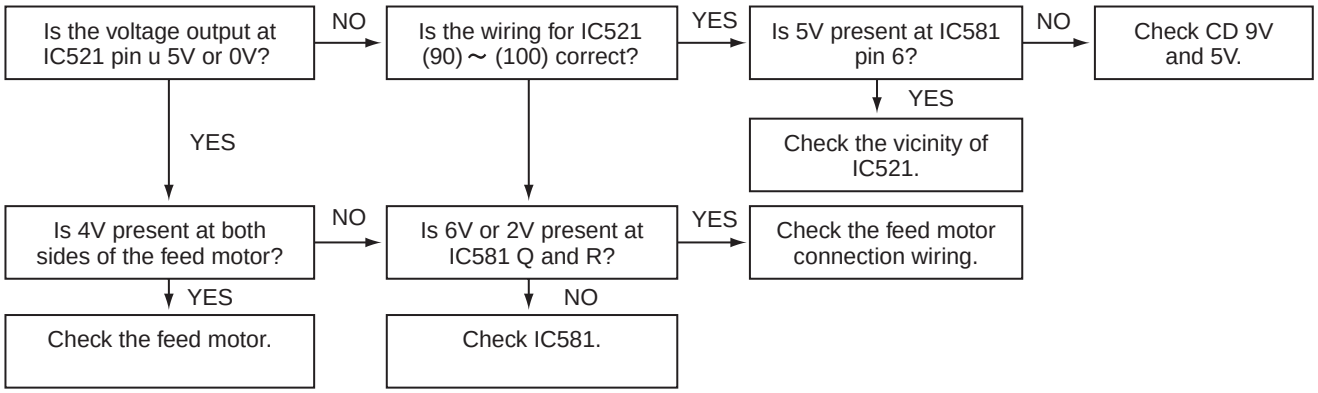
3.3 Flow of functional operation until TOC read



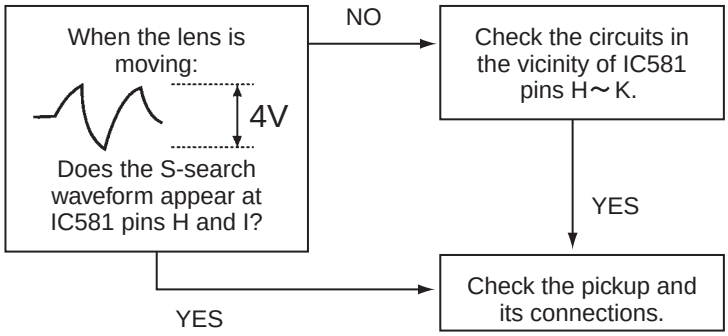
3.3.1 General section


Turn the power on with no magazine loaded.
Reset
Move the lifter until it comes to the STOP position (shipping position).
NO
The lifter moves up or down and stops.
YES
Check the linear position sensor (VR601).
NO
YES
The position motor does not function.
YES
Check the wiring of the CD 9 V power supply position motor.
NO
Connect the receiver, etc. and turn the power on.
The tray motor goes forward and back several times.
Check the TRAY-IN and TRAY-OUT switches.
Set to the changer mode.
CD changer indication appears on the receiver, etc.
NO
Check the connections to the receiver or the circuits in the vicinity of IC651.
YES
Load the magazine.
Is the disc pulled out to start play?
NO
YES
Is the disc taken out?
NO
Check the MAG SW, TRAY-IN, and TRAY-OUT switches.
YES
Is the disc rotated?
NO
Set from the STOP to PLAY mode, then check that the triangle wave appears at IC581 pins H and I .
YES
Is voltage present at IC521 pin z 2.5 V while the disc rotates?
NO
Proceed to the Signal Processing section.
YES
Proceed to the Tracking section.
Is track selection or search performed correctly?
NO
YES
10. Is the playback sound normal?
NO
Proceed to the Signal Processing section.
YES
Normal
NO
Proceed to the Focus section.
YES
Exchange discs, then check whether or not the feed motor moves.
NO
Check the RESET switch and feed section
(Refer to the Feed section).
YES
Does the laser emit?
NO
Check the vicinity of IC501 6and 7.
YES
Proceed to the Focus section.

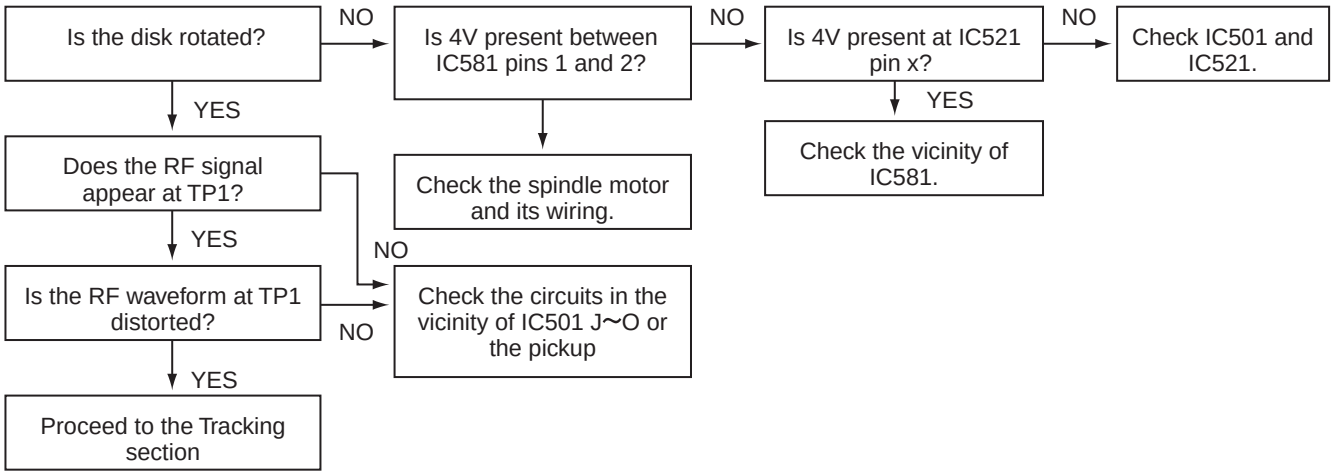
3.3.2 Feed section


Is the voltage output at IC521 pin u 5V or 0V?
NO
Is the wiring for IC521 (90)～(100) correct?
YES
Is 5V present at IC581 pin 6?
NO
Check CD 9V and 5V.
YES
Check the vicinity of IC521.
YES
Is 4V present at both sides of the feed motor?
NO
Is 6V or 2V present at IC581 Q and R?
YES
Check the feed motor connection wiring.
YES
NO
Check the feed motor.
Check IC581.

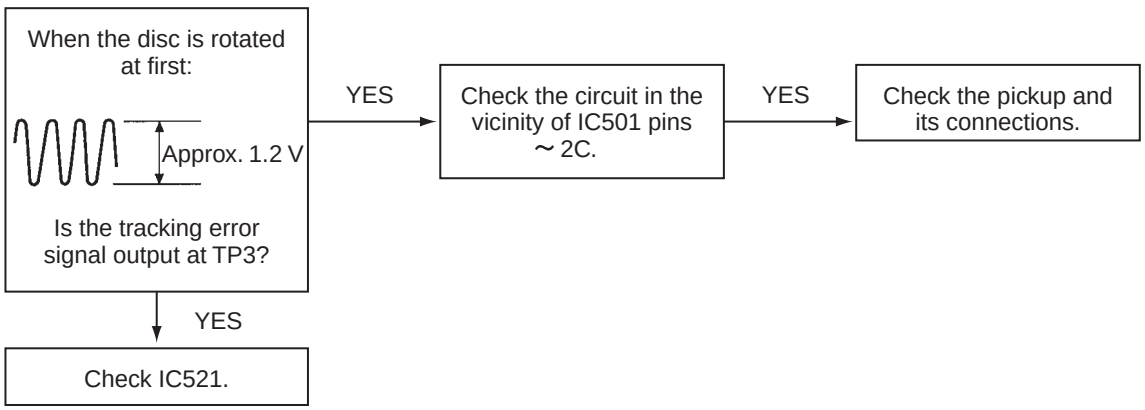
3.3.3 Focus section


When the lens is moving:
4V
Does the S-search waveform appear at IC581 pins H and I?
NO
Check the circuits in the vicinity of IC581 pins H～K.
YES
YES
Check the pickup and its connections.

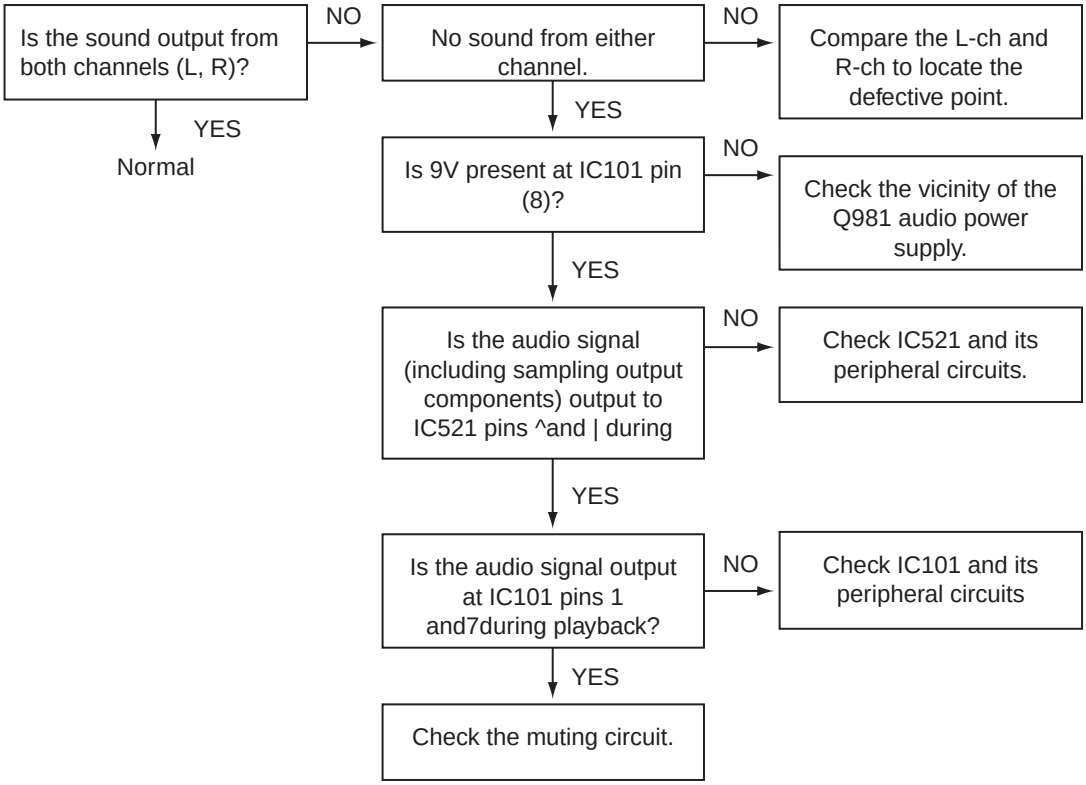
3.3.4 Spindle section


Is the disk rotated?
NO
Is 4V present between IC581 pins 1 and 2?
NO
Is 4V present at IC521 pin x?
NO
Check IC501 and IC521.
YES
Check the vicinity of IC581.
YES
Does the RF signal appear at TP1?
Check the spindle motor and its wiring.
YES
NO
Is the RF waveform at TP1 distorted?
NO
Check the circuits in the vicinity of IC501 J～O or the pickup
YES
Proceed to the Tracking section

3.3.5 Tracking section


When the disc is rotated at first:
Approx. 1.2 V
Is the tracking error signal output at TP3?
YES
Check the circuit in the vicinity of IC501 pins ～2C.
YES
Check the pickup and its connections.
YES
Check IC521.

3.3.6 Signal processing section

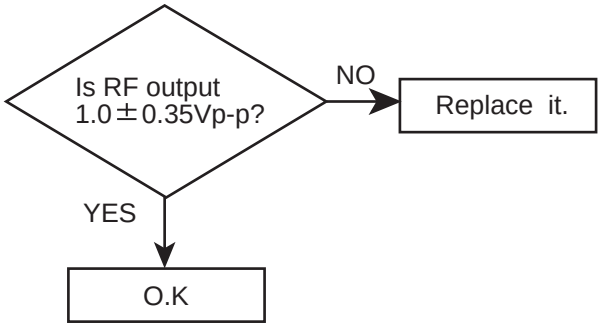

Is the sound output from both channels (L, R)?
NO
No sound from either channel.
NO
Compare the L-ch and R-ch to locate the defective point.
YES
Normal
YES
Is 9V present at IC101 pin (8)?
NO
Check the vicinity of the Q981 audio power supply.
YES
Is the audio signal (including sampling output components) output to IC521 pins ^and | during
NO
Check IC521 and its peripheral circuits.
YES
Is the audio signal output at IC101 pins 1 and7during playback?
NO
Check IC101 and its peripheral circuits
YES
Check the muting circuit.

3.4 Maintenance of laser pickup

(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

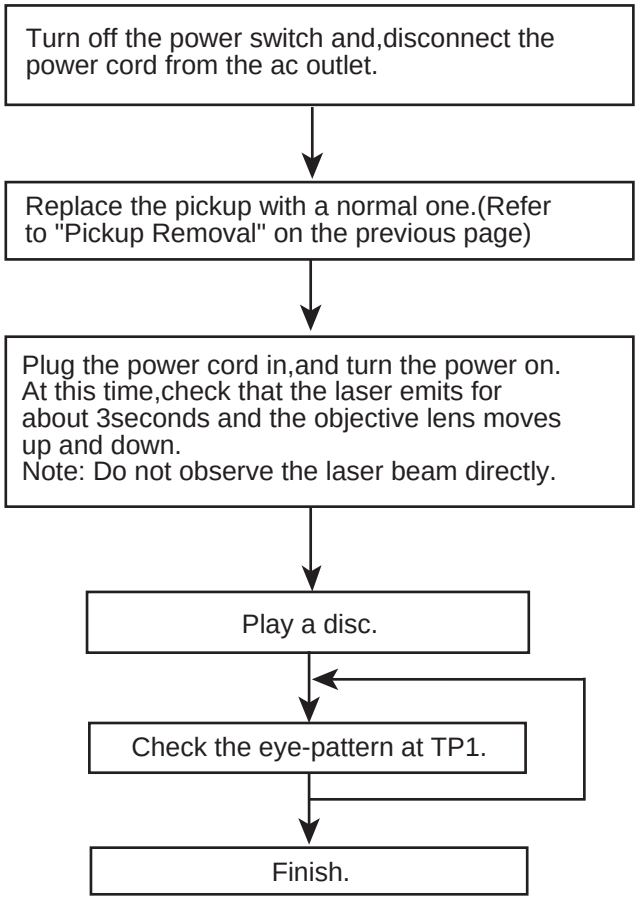
(2) Life of the laser diode
When the life of the laser diode has expired,the following symptoms will appear.

- The level of RF output (EFM output:ampli tude of eye pattern) will be low.



(3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor. If the laser power is lower than the specified value,the laser diode is almost worn out, and the laser pickup should be replaced. If the semi-fixed resistor is adjusted while the pickup is functioning normally,the laser pickup may be damaged due to excessive current.

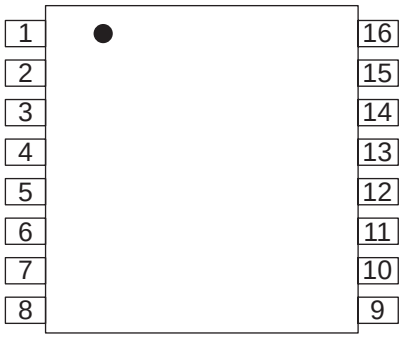
3.5 Replacement of laser pickup


Turn off the power switch and,disconnect the power cord from the ac outlet.
Replace the pickup with a normal one.(Refer to "Pickup Removal" on the previous page)
Plug the power cord in,and turn the power on. At this time,check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.
Play a disc.
Check the eye-pattern at TP1.
Finish.

SECTION 4
Description of major ICs

4.1 AK4381VT-X (IC121) : 2ch DAC

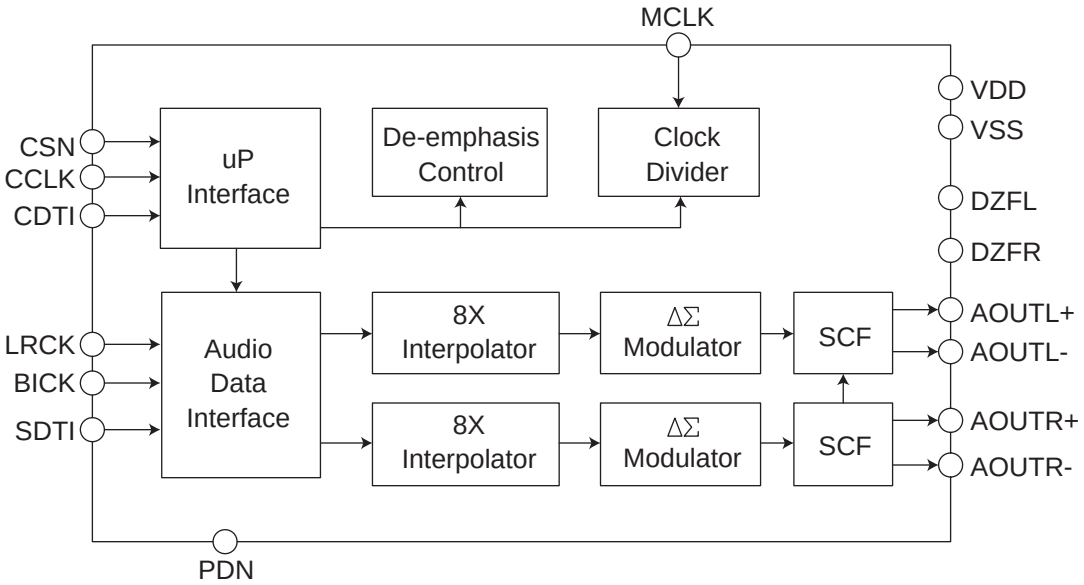
• Pin layout



• Pin functions

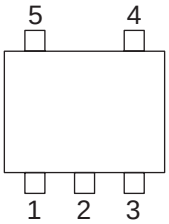
Pin No	Symbol	Function
1	MCLK	Master clock input pin
2	BICK	Audio serial data clock pin
3	SDTI	Audio serial data input pin
4	LRCK	L/R clock pin
5	PDN	Power-Down mode pin
6	CSN	Chip select pin
7	CCLK	Control data input pin
8	CDTI	Control data input pin
9	AOUTR-	Rch negative analog output pin
10	AOUTR+	Rch positive analog output pin
11	AOUTL-	Lch negative analog output pin
12	AOUTL+	Lch positive analog output pin
13	VSS	Ground pin
14	VDD	Power supply pin
15	DZFR	Rch data zero input detect pin
16	DZFL	Lch data zero input detect pin

• Block diagram

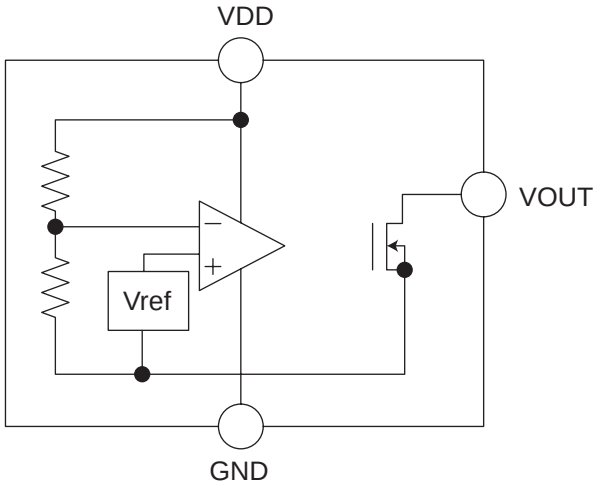


4.2 DB4833FVE-W (IC502) : Voltage detector

• Pin layout



• Block diagram

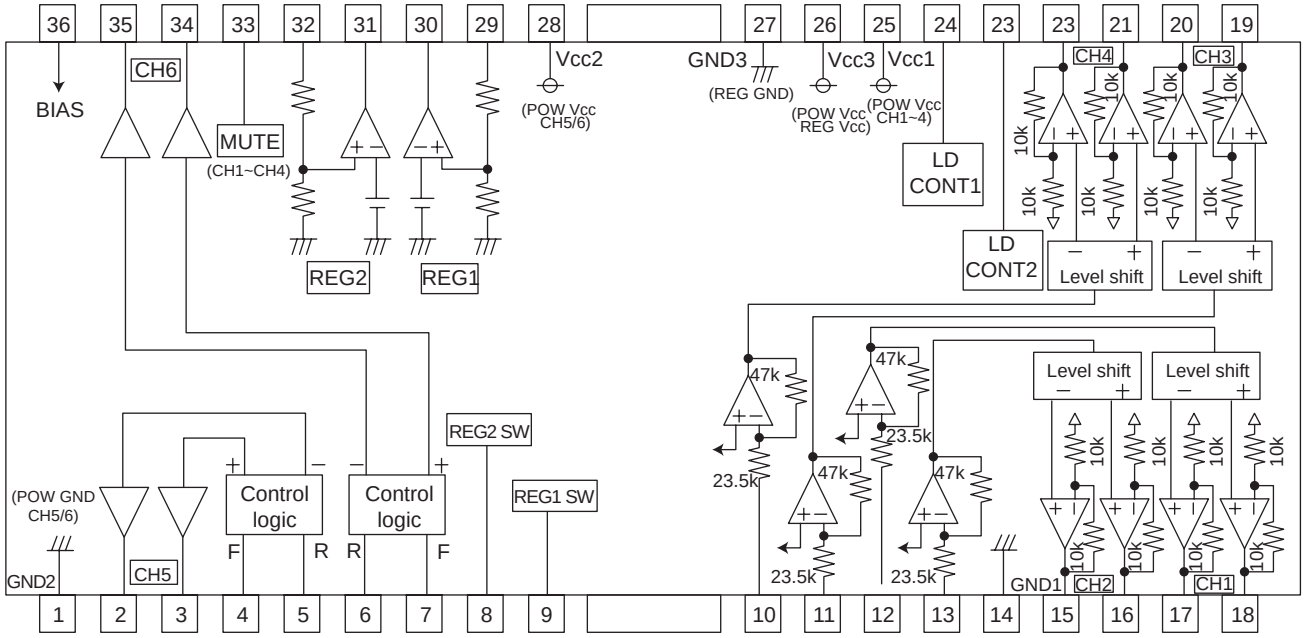


• Pin functions

Pin No	Symbol	Function
1	VOUT	Reset output
2	SUB	Sub slate (connect to GND)
3	N.C.	Non connect
4	GND	GND
5	VDD	Power supply voltage

4.3 BD7961FM-X (IC681) : Power driver

- Pin layout & Block diagram



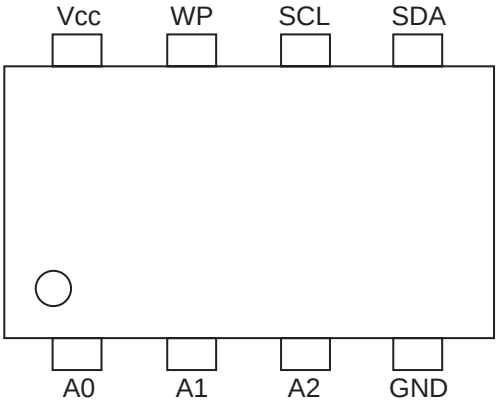
- Pin functions

Pin No	Symbol	Function
1	GND2	Power GND (loading driver unit)
2	OUT5-	Loading driver (CH5) output -
3	OUT5+	Loading driver (CH5) output +
4	IN5FWD	Loading driver (CH5) FWD input
5	IN5REV	Loading driver (CH5) REV input
6	IN6REV	Loading driver (CH6) REV input
7	IN6FWD	Loading driver (CH6) FWD input
8	REG2SW	Regulator 2 switch terminal
9	REG1SW	Regulator 1 switch terminal
10	IN4	CH4 input
11	IN3	CH3 input
12	IN1	CH1 input
13	IN2	CH2 input
14	GND1	Power GND (BTL driver unit)
15	OUT2-	BTL driver (CH2) output -
16	OUT2+	BTL driver (CH2) output +
17	OUT1-	BTL driver (CH1) output -
18	OUT1+	BTL driver (CH1) output +

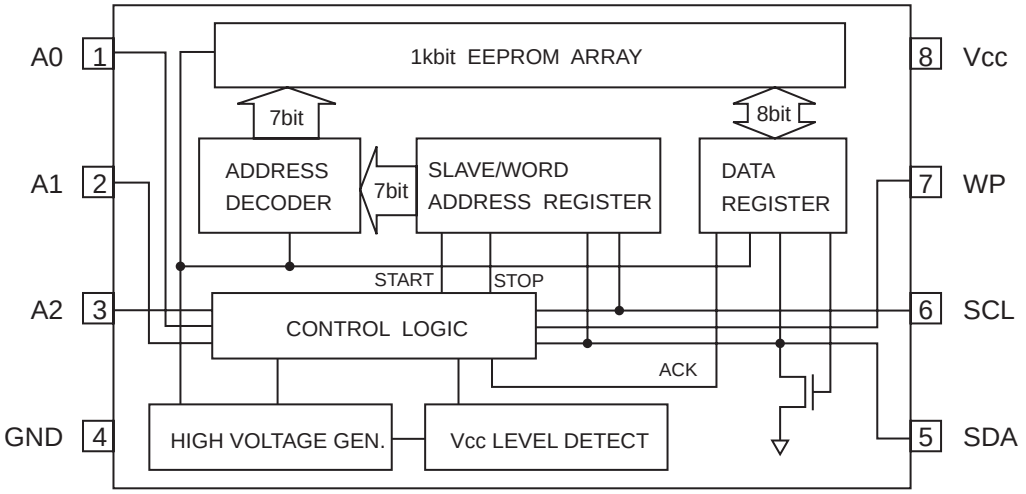
Pin No	Symbol	Function
19	OUT3+	BTL driver (CH3) output +
20	OUT3-	BTL driver (CH3) output -
21	OUT4+	BTL driver (CH4) output +
22	OUT4-	BTL driver (CH4) output -
23	LDCONT2	Loading driver (CH6) voltage setting
24	LDCONT1	Loading driver (CH5) voltage setting
25	Vcc1	Supply voltage (BTL driver unnit)
26	Vcc3	Supply voltage (regulator unit)
27	GND3	REG GND (regulator unit)
28	Vcc2	Supply voltage (loading driver unit)
29	REG1OUT	Regulator output 1
30	REG1 B	Regulator 1 Tr base
31	REG2 B	Regulator 2 Tr base
32	REG2OUT	Regulator output 2
33	MUTE	BTL drivermute terminal
34	OUT6+	Loading driver (CH6) output +
35	OUT6-	Loading driver (CH6) output -
36	BIAS	BIAS terminal

4.4 BR24C01AFV-W-X (IC503) : EEPROM

- Pin layout



- Block diagram



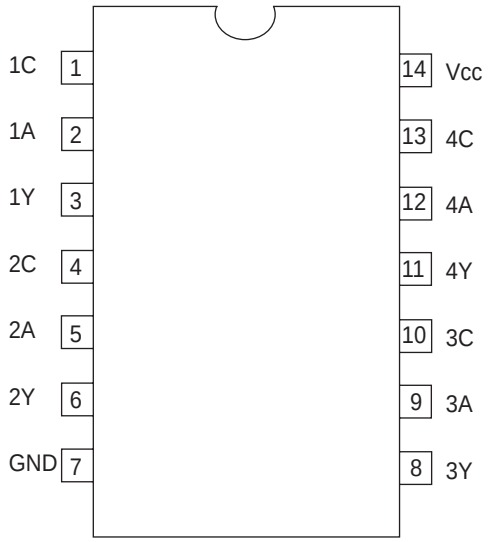
- Pin function

Pin name	I/O	Description
Vcc	-	Power supply
GND	-	Ground (0v)
A0A1A2	IN	Slave address set
SCL	IN	Serial clock input
SDA	IN / OUT	Slave and word addressserial data input serial data output *1
WP	IN	Write protect input

*1 An open drain output requires a pull-up resister.

4.5 HD74HCT126T-X : (IC541,IC691) Buffer

- Pin arrangement

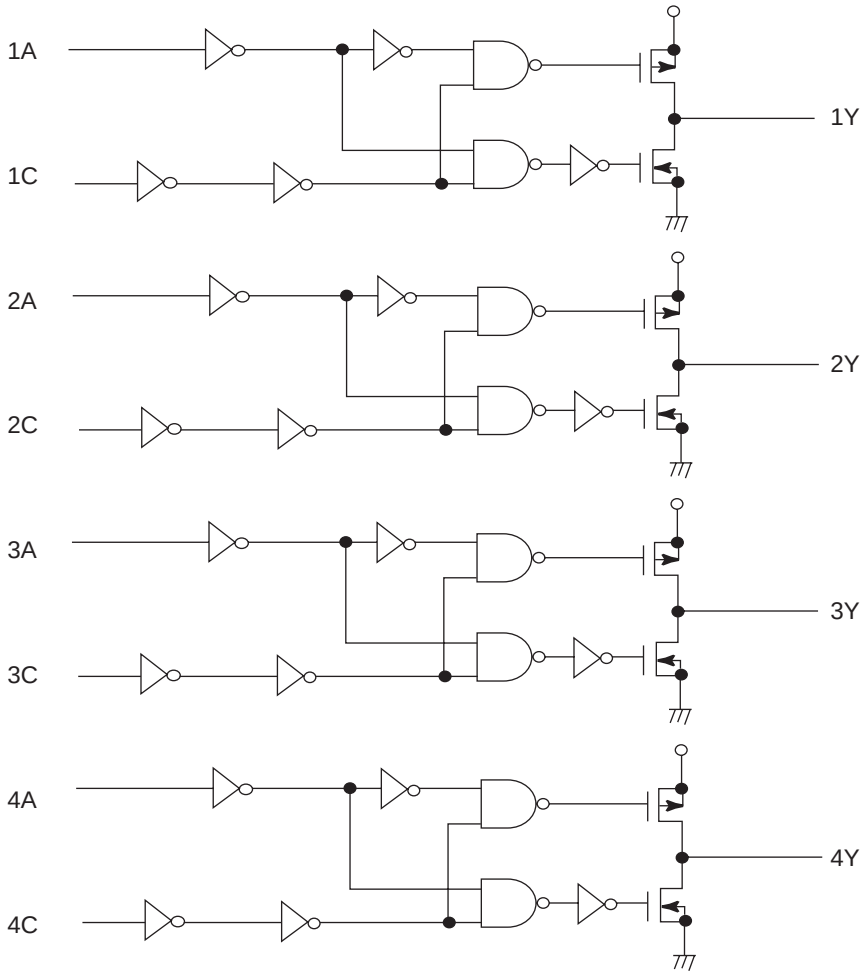


- Pin function

Input		Output
C	A	Y
L	X	Z
H	L	L
H	H	H

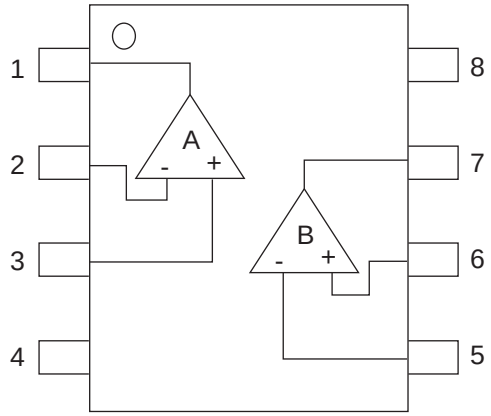
H : High level
L : Low level
X : Irrelevant
Z : Off (Hhigh-impedance)state of a 3-stage output

- Block diagram



4.6 NJM4565V-X (IC151) : Dual ope amp

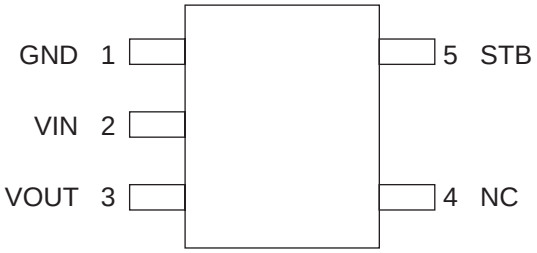
- Terminal layout & Pin function



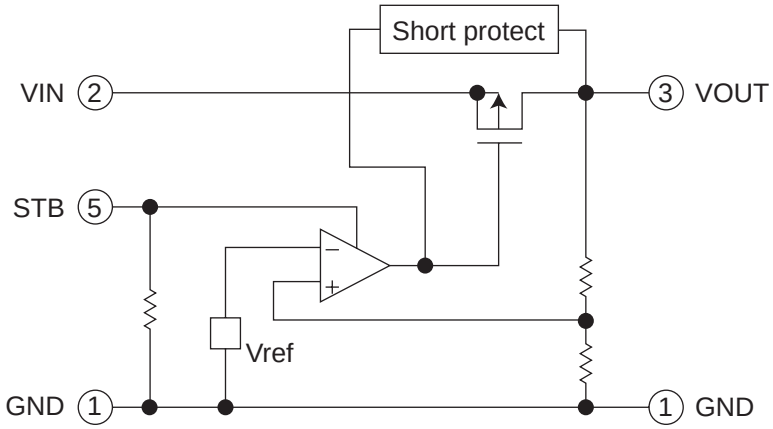
1 AOUTPUT
2 A-INPUT
3 A+INPUT
4 V^-
5 B+INPUT
6 B-INPUT
7 B OUTPUT
8 V^+

4.7 NJU7241F25-X (IC653) : Regulator

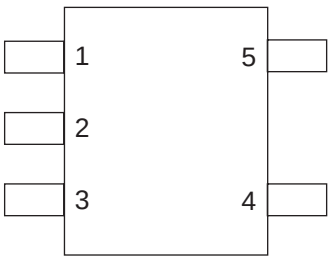
- Pin layout



- Block diagram



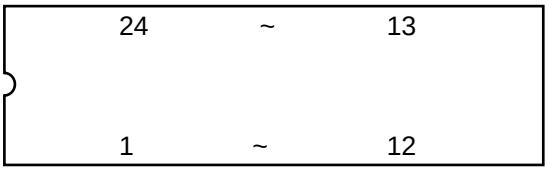
4.8 NJU7241F33-X (IC652) : Voltage regulator



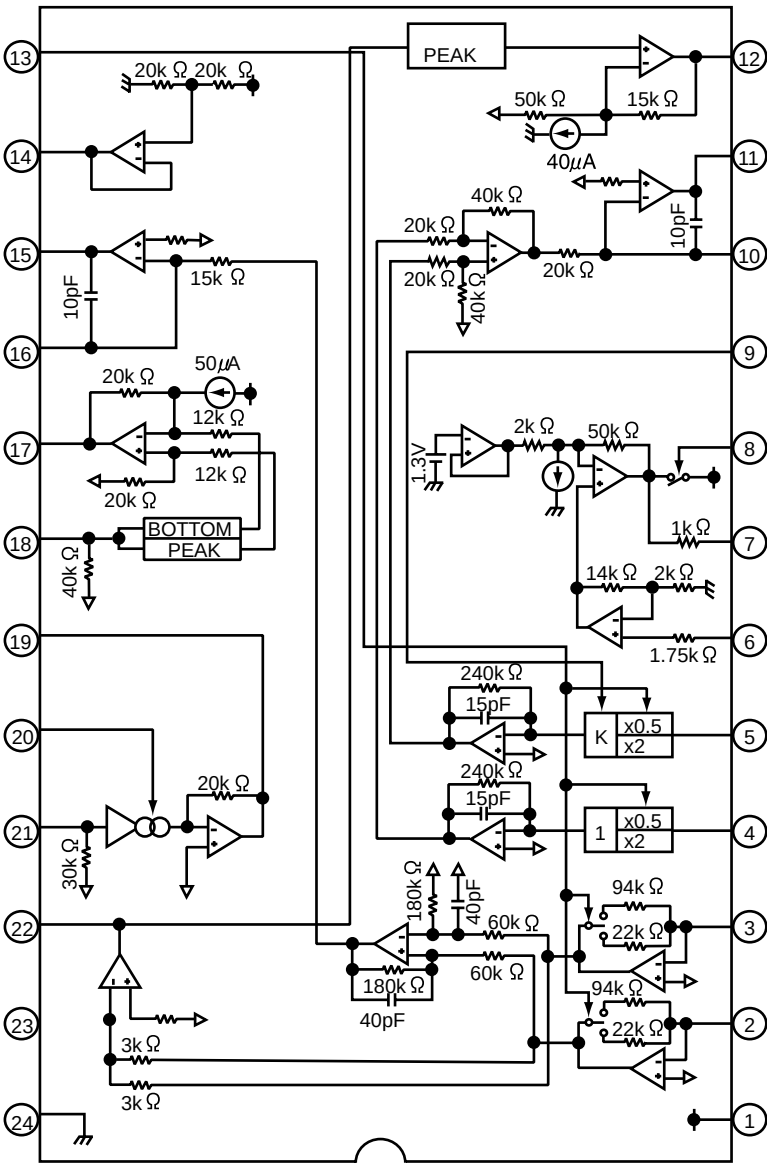
PIN FUNCTION
1. GND
2. V_{IN}
3. V_{OUT}
4. +NC
5. STB

4.9 TA2157FN-X (IC601) : RF amp

- Terminal layout



- Block diagram



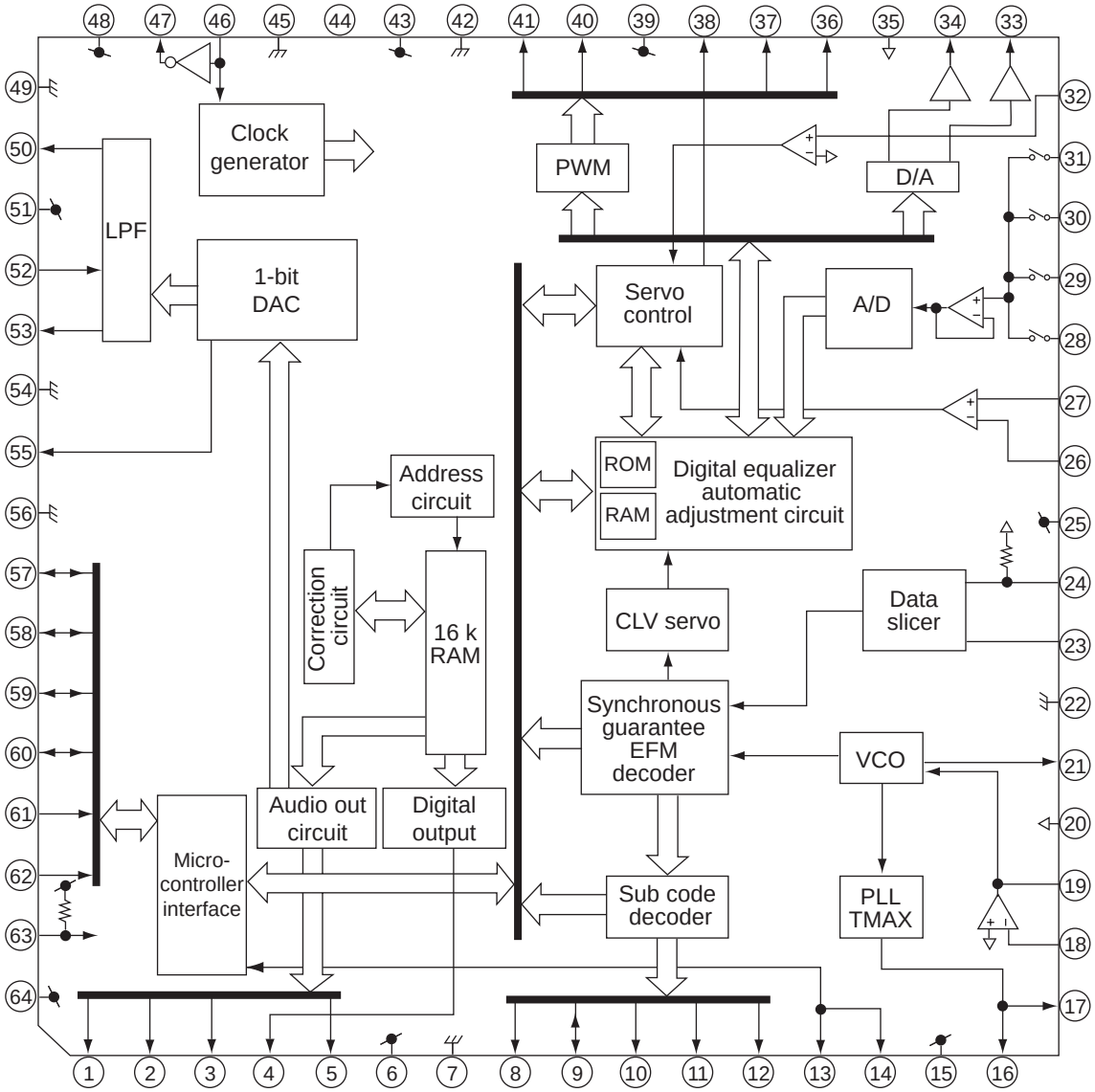
PIN VCTRLPIN	SEL (APC SW)	TEB (TE BAL)	RFGC (AGC Gian)	TEB (TE BAL)
VCC	APC ON	-50%	+12dB	Normal mode (0dB)
HiZ	APC ON	0%	+6dB	Normal mode (0dB)
GND	APC OFF (LDO=H)	50%	0dB	CD-RW mode (+12dB)

• Pin function

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>VCC</td><td>-</td><td>3.3V power supply pin</td></tr>
<tr><td>2</td><td>FNI</td><td>I</td><td>Main-beam amp input pin</td></tr>
<tr><td>3</td><td>FPI</td><td>I</td><td>Main-beam amp input pin</td></tr>
<tr><td>4</td><td>TPI</td><td>I</td><td>Sub-beam amp input pin</td></tr>
<tr><td>5</td><td>TNI</td><td>I</td><td>Sub-beam amp input pin</td></tr>
<tr><td>6</td><td>MDI</td><td>I</td><td>Monitor photo diode amp input pin</td></tr>
<tr><td>7</td><td>LDO</td><td>O</td><td>Laser diode amp output pin</td></tr>
<tr><td>8</td><td>SEL</td><td>I</td><td>APC circuit ON/OFF control signal, laser diode (LDO) control signal input
or bottom/peak detection frequency change pin.
<table>
<tr><th>SEL</th><th>APC circuit</th><th>LDO</th></tr>
<tr><td>GND</td><td>OFF</td><td>Connected VCC through 1kΩ resistor</td></tr>
<tr><td>Hiz</td><td>ON</td><td>Control signal output</td></tr>
<tr><td>VCC</td><td>ON</td><td>Control signal output</td></tr>
</table></td></tr>
<tr><td>9</td><td>TEB</td><td>I</td><td>Tracking error balance adjustment signal input pin
Adjusts TE signal balance by eliminating carrier component from PWM signal (3-state output,
PWM carrier = 88.2kHz) output from TC94A14F/FA
TEBC pin using RC-LPF and inputting DC.
TEBC input voltage:GND~VCC</td></tr>
<tr><td>10</td><td>TEN</td><td>I</td><td>Tracking error signal generation amp negative-phase input pin</td></tr>
<tr><td>11</td><td>TEO</td><td>O</td><td>Tracking error signal generation amp output pin.
Combining TEO signal RFRP signal with TC94A14F/FA configures tracking search system.</td></tr>
<tr><td>12</td><td>RFDC</td><td>O</td><td>RF signal peak detection output pin</td></tr>
<tr><td>13</td><td>GVSW</td><td>I</td><td>AGC/FE/TE amp gain change pin
<table>
<tr><td>GVSW</td><td>Mode</td></tr>
<tr><td>GND</td><td>CD-RW</td></tr>
<tr><td>Hiz</td><td rowspan="2">Normal</td></tr>
<tr><td>VCC</td></tr>
</table></td></tr>
<tr><td>14</td><td>VRO</td><td>O</td><td>Reference voltage (VRO) output pin
*VRO=1/2VCC When VCC=3.3V</td></tr>
<tr><td>15</td><td>FEO</td><td>O</td><td>Focus error signal generation amp output pin</td></tr>
<tr><td>16</td><td>FEN</td><td>I</td><td>Focus error signal generation amp negative-phase input pin</td></tr>
<tr><td>17</td><td>RFRP</td><td>O</td><td>Signal amp output pin for track count
Combining RFRP signal and TEO signal with TC94A14F/FA configures tracking search system.</td></tr>
<tr><td>18
19
20</td><td>REIS
RFGO
RFGC</td><td>I
O
I</td><td>
RF signal amplitude adjustment amp output pin
RF amplitude adjustment control signal input pin
Adjusts RF signal amplitude by eliminating carrier component from PWM signal (3-state output, PWM carrier=88.2kHz)output fromTC94A14F/14FA *RFGC pin using RC-LPF and inputting DC.
*RFGC input voltage:GND~VCC</td></tr>
<tr><td>21</td><td>AGCIN</td><td>I</td><td>RF signal amplitude adjustment amp input pin</td></tr>
<tr><td>22</td><td>RFO</td><td>O</td><td>RF signal generation amp output pin</td></tr>
<tr><td>23</td><td>RFI</td><td>I</td><td>RF signal generation amp input pin</td></tr>
<tr><td>24</td><td>GND</td><td>-</td><td>GND pin</td></tr>
</table>

4.10 TC94A14FA (IC621) : DSP & DAC

• Terminal layout & block daiagram



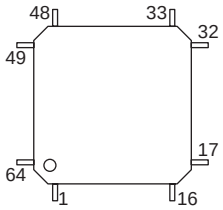
• Pin function

Pin No	Symbol	I/O	Descroption
1	BCK	O	Bit clock output pin.32fs48fsor 64fs selectable by command.
2	LRCK	O	L/R channel clock output pin."L" for L channel and "H" for R channel. Output polarity can be inverted by command.
3	AOUT	O	Audio data output pin. MSB-first or LSB-first selectable by command.
4	DOUT	O	Digital data output pin.Outputs up to double-speed playback.
5	IPF	O	Correction flag output pin. When set to "H" AOUT output cannot be corrected by C2 correction processing.
6	V_{DD3}	-	Digital 3.3V power supply voltage pin.
7	V_{SS3}	-	Digital GND pin.
8	SBOK	O	Subcode Q data CRCC result output pin. "H" level when result is OK.
9	CLCK	O	Subcode P-W data read I/O pin. I/O polarity selectable by command.
10	DATA	O	Subcode P-W data output pin.
11	SFSY	O	Playback frame sync signal output pin.
12	SBSY	O	Subcode block sync signal output pin. "H" level at S1 when subcode sync is detected.
13	HSO	I/O	General-purpose input / output pins.Input port at reset.
14	UHSO		
15	PV_{DD3}	-	PLL-only 3.3V power supply voltage pin.
16	PDO	O	EFM and PLCK phase difference signal output pin.

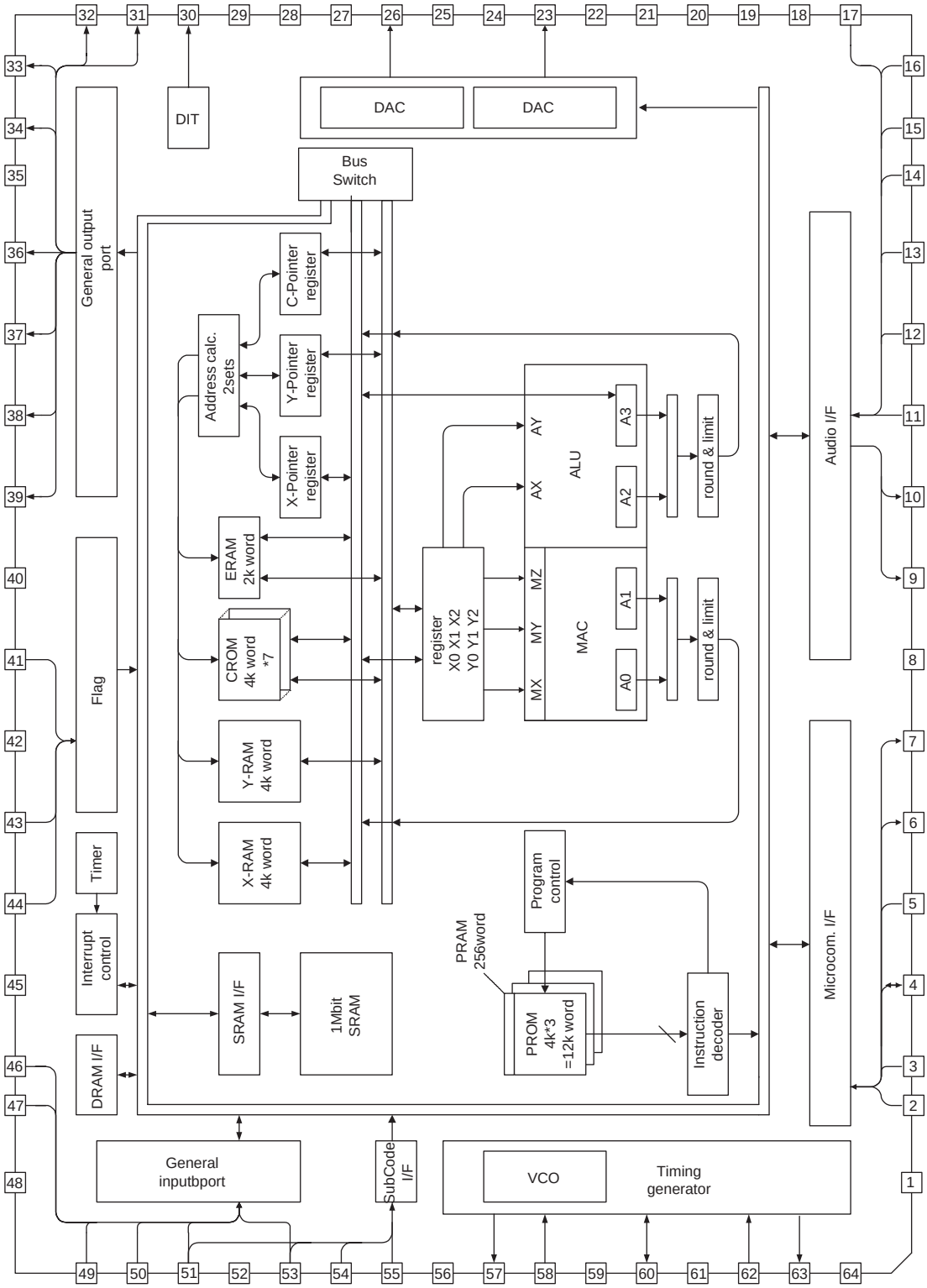
Pin No	Symbol	I/O	Descroption
17	TMAX	O	TMAX detection result output pin. TMAX Detection Result / TMAX Output Longer than fixed period / "PV_{DD3}" Within fixed period / "HiZ" Shorter than fixed period / "AV_{SS3}"
18	LPFN	I	Inverted input pin for PLL LPF amp.
19	LPFO	O	Output pin for PLL LPF amp.
20	PVREF	-	PLL-only VREF pin.
21	VCOF	O	VCO filter pin.
22	AV_{SS3}	-	Analog GND pin.
23	SLCO	O	DAC output pin for data slice level generation.
24	RFI	I	RF signal input pin. Zin selectable by command.
25	AV_{DD3}	-	Analog 3.3V power supply voltage pin.
26	RFCT	I	RFRP signal center level input pin.
27	RFZI	I	RFRP signal zero-cross input pin.
28	RFRP	I	RF ripple signal input pin.
29	FEI	I	Focus error signal input pin.
30	SBAD	I	Sub-beam adder signal input pin.
31	TEI	I	Tracking error input pin. Inputs when tracking servo is on.
32	TEZI	I	Tracking error signal zero-cross input pin.
33	FOO	O	Focus equalizer output pin.
34	TRO	O	Tracking equalizer output pin.
35	VREF	-	Analog reference power supply voltage pin.
36	RFGC	O	RF amplitude adjustment control signal output pin.
37	TEBC	O	Tracking balance control signal output pin.
38	SEL	O	APC circuit ON/OFF signal output pin. At laser on, high impedance with UHS="L", H output with UHS="H".
39	AV_{DD3}	-	Analog 3.3V power supply voltage pin.
40	FMO	O	Feed equalizer output pin.
41	DMO	O	Disc equalizer output pin.
42	V_{SS3}	-	Digital GND pin.
43	V_{DD3}	-	Digital 3.3V power supply voltage pin.
44	TESIN	I	Test input pin. Normally, fixed to "L".
45	XV_{SS3}	-	System clock oscillator GND pin.
46	XI	I	System clock oscillator input pin.
47	XO	O	System clock oscillator output pin.
48	XV_{DD3}	-	System clock oscillator 3.3V power supply voltage pin.
49	$DV_{SS3}R$	-	DA converter GND pin.
50	RO	O	R-channel data forward output pin.
51	DV_{DD3}	-	DA converter 3.3V power supply pin.
52	DVR	-	Reference voltage pin.
53	LO	O	L-channel data forward output pin.
54	$DV_{SS3}L$	-	DA converter GND pin.
55	ZDET	O	1 bit DA converter zero detection flag output pin.
56	V_{SS5}	-	Microcontroller interface GND pin.
57	BUS0		
58	BUS1	I/O	Microcontroller interface data I/O pins.
59	BUS2		
60	BUS3		
61	BUCK	I	Microcontroller interface clock input pin.
62	/CCE	I	Microcontroller interface chip enable signal input pin.At "L", BUS0 to BUS3 are active.
63	/RST	I	Reset signal input pin. At reset, "L".
64	V_{DD5}	-	Microcontroller interface 5V power supply pin.

4.11 TC94A20F-011 (IC651) : DAC/SRAM built in type D-ROM decoder+ MP3 decoder

- Pin layout



- Block diagram

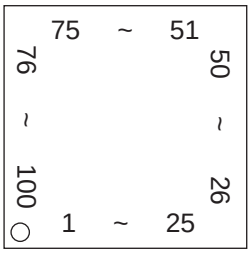


• Pin functions

Pin No	Symbol	I/O	Functions
1	/RESET	I	Hard reset input H:normal L:reset
2	MiMD	I	Micon I/F mode select input
3	/MiCS	I	Micon I/F chip select input
4	/MiLP	I	Micon I/F latch palus input
5	MiDio	I/O	Micon I/F data input/output
6	/MiCK	I	Micon I/F clock input
7	MiACK	O	Micon I/F acknowledge output
8	VDDT	-	Power supply for digital (3.3V)
9	SDo	O	Data output
10	BCKo	O	Bit output
11	LRCKo	O	LR clock output
12	SDiO	I	Data input 0
13	BCKiA	I	Bit clock input A
14	LRCKiA	I	LR clock input A
15	SDiL	I	Data input terminal 1
16	BCKiB	I	Bit clock input terminal B
17	LRCKiB	I	LR clock input terminal B
18	VDD	-	Power supply for digital (2.5V)
19	STANBY	I	Standby mode control input H:STBY L:normal
20	VSS	-	GND for digital
21	VSSL	-	GND for DAC Lch
22	VRAL	-	Reference voltage for DAC Lch
23	LO	O	DAC Lch output
24,25	VDAL,VDAR	-	Power supply for DAC Lch/Power supply for DAC Rch (2.5V)
26	RO	O	DAC Rch output
27	VRAR	-	Reference voltage for DAC Rch
28	VSSR	-	GND for DAC R ch
29	TESTP	I	Test terminal H:test mode L:normal
30	TXO	O	SPDIF output
31~34	Po0~Po3	O	General purpose output 0 ~ 3
35	VDDT	-	Power supply for digital (3.3V)
36~38	Po4~Po6	O	General purpose output 4 ~ 6
39	REQ	O	REC terminal
40	VSS	-	GND for digital
41	IRO	I/O	External interrupt input
42	VDDM	-	Internal 1Mbit SRAM power supply (2.5V)
43,44	Fi0,Fi1	I	Flug input 0,1
45	VSSM	-	GND for internal 1Mbit SRAM
46,47	Pi0,Pi1	I	General ourpose input 01
48	VSS	-	GND for digital
49,50	Pi2,Pi3	I	General purpose input 23
51	Pi4/CLCL	I	General purpose input 4/SUBQ I/F clock inputoutput
52	VDD	-	Power supply for digital (2.5V)
53	Pi5/DATA	I	General purpose input 5/SUBQ I/F data input
54	TSTiN/SFSY	I	Test terminal/SUBQ I/F flame sync input
55	Fi2/SBSY	I	Flug input 2/SUBQ I/F block sync input
56	VSSP	-	GND for VCO
57	Pdo	O	PLL phase error detection signal output
58	Vcoi	I	VCO control voltage input
59	VDDP	-	Power supply for VCO (2.5V)
60	CKo/CKi	I/O	External clock input/Clock output terminal
61	VDDX	-	Power supply for X'tal oscillator (2.5V)
62,63	Xi,Xo	I,O	Oscillator connection terminal for input/output
64	VSSX	-	GND for oscillator

4.12 UPD784217AGC209 (IC501) : System micon

- Pin layout



- Pin functions

Pin No	Symbol	I/O	Function
1	NC	O	Non connect
2	DAC SEL	I	DAC presence mode
3,4	NC	-	Non connect
5	MP3 SEL	I	MP3 presence mode
6	SHOCK SEL	I	H:shock detection 1 L:shock detection 2
7	STAGE1	I	LCD/AD key/Rimocon invalid select L:invalid
8	STAGE2	I	Initial setting port
9	VDD1	-	Connect to 5V
10	X2	O	Oscillator output(12.5MHz)
11	X1	I	Oscillator input(12.5MHz)
12	GND	-	GND
13	XT2	O	Open
14	XT1	I	Connect to GND
15	RESET	I	Reset input
16	REMOCON	I	Remocon signal input
17	B.DET	I	Buck up power supply detection
18	P.DET	I	Main power off detection
19	BUS INT	I	JVC BUS communication start interrupu input
20	MP3 REQ	I	CD MP3 request input
21	NC	-	Non connect
22	EJECT	I	Eject key input
23	VDD0	-	Connect to 5V
24	AVDD	-	Connect to AD CONT(power supply for A/D converter)
25	IOP	I	Pickup IOP measurement input
26~29	KEY0~3	I	Key input 0 ~ 3 (8bit A/D input)
30	TEMP IN	I	Temp. detection input
31	L SENSOR	I	Linear senser input (8bit A/D input)
32	NC	I	Non connect (connect to GND)
33	GND	-	GND for A/D converter
34	ADCONT	O	Out put H at power ON stop mode:L
35	V CONT	O	Position motor voltage control analog output
36	VREF	-	Reference voltage for A/D converter
37	EPROMDI	I	EEPROM data input
38	EPROMDO	O	EEPROM data output
39	EPROMCK	I/O	EEPROM clock inpt/output
40	LCD CE	O	CE output for LCD driver
41	LCD DA	O	Data output for LCD driver
42	LCD CK	O	Clock output for LCD driver
43	NC	O	Non connect
44	BUS I/O	O	JVC BUS input/output control
45	BUS SI	I	JVC BUS data input
46	BUS SO	O	JVC BUS data output

Pin No	Symbol	I/O	Function
47	BUS SCK	I/O	JVC BUS colck input/ooutput
48	POSMO+	O	Position motor control output
49	POSMO-	O	Position motor control output
50	TRAYMO+	O	Tray motor control output
51	TRAYMO-	O	Tray motor control output
52,53	NC	-	Non connect
54	EMPH	O	Emphasis select output H:ON
55	PWR CONT	O	Output for power control H:ON
56	BUSOUT	O	JVC BUS output
57	CD ON	O	CD power supply control (5V) H:ON
58	NC	-	Non connect
59	CD MUTE	O	CD mute output H:mute ON
60	SHOCK	I	Shock detection input Shock:L
61	NC	-	Non connect
68	2X PLAY	O	2x speed playback corespond RF frequency response select output (2x:L)
69	RW SEL	O	CD-RW select output (RW:L)
70,71	NC	-	Non connect
72	GND	-	GND
73	MP3 DI	I	CD MP3 data input
74	MP3 DO	O	CD MP3 data output
75	MP3 CK	O	Clock for CD MP3 data
76	MP3 RESET	O	CD MP3 reset
77	MP3 STB	O	CD MP3 standby output (H:standby)
78	CD CHECK	I	CD CHECK mode input (only reset mode)
79	LED	O	Lifter LED output
80	EPROM CLR	I	EPROM clear input
81	VDD	-	Connect to 5V
82	MAG IN	I	Magazin switch L:magazin in
83	TRAY IN	I	Tray return switch L: complete return
84	TRAY OUT	I	Tray loading switch L:complete loading
85	REST	I	Rest switch
86	DAC PDN	O	DAC power down mode
87	DAC CSN	O	DAC chip select output
88	DAC CCLK	O	DAC clock data output
89	DAC CDTI	O	DAC data output
90	NC	O	Non connect
91	DSP RESET	O	CD DSP reset
92	CCE	O	CD DSP chip enable
93	BUCK	O	Clock for CD DSP data
94	VPP	-	Connect to GND
95~98	BUS0~3	I/O	CD DSP data 0 ~ 3
99100	NC	I	Non connect

JVC
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(No.49776)

Printed in Japan
2003/01

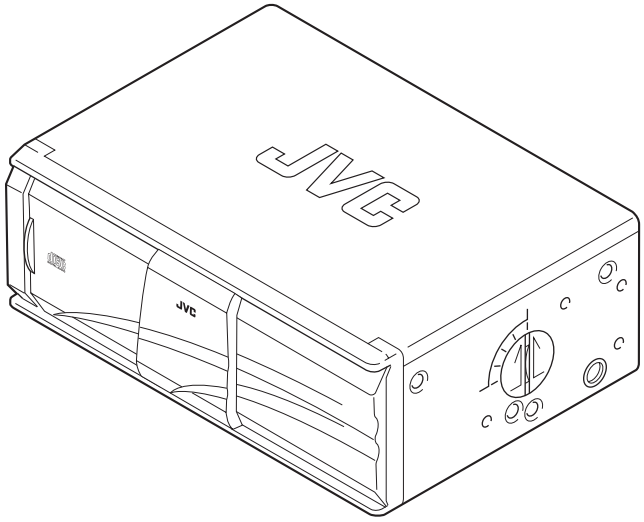
JVC

SCHEMATIC DIAGRAMS

CD CHANGER

CH-X1500

CD-ROM No.SML200301



COMPACT disc DIGITAL AUDIO TEXT

MP3

CD-RW PLAYBACK

Area Suffix

J ------- Northern America
E ------ Continental Europe
U ---------- Other Areas

Contents

Block diagram ---------- 2-1
Standard schematic diagrams --------- 2-2
Printed circuit boards ---------- 2-6,7

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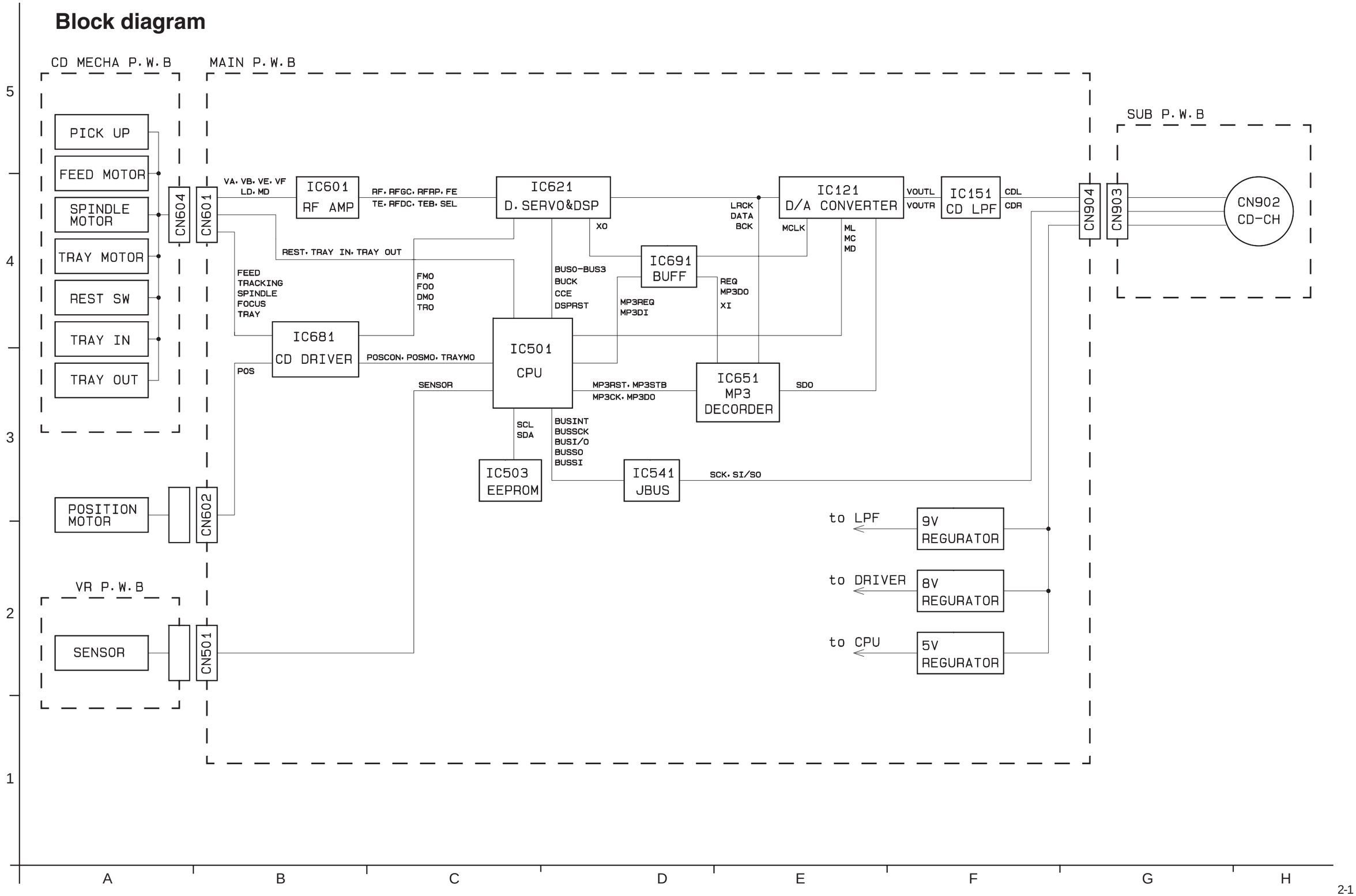
No.49776
Jan. 2003

Safety precaution

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

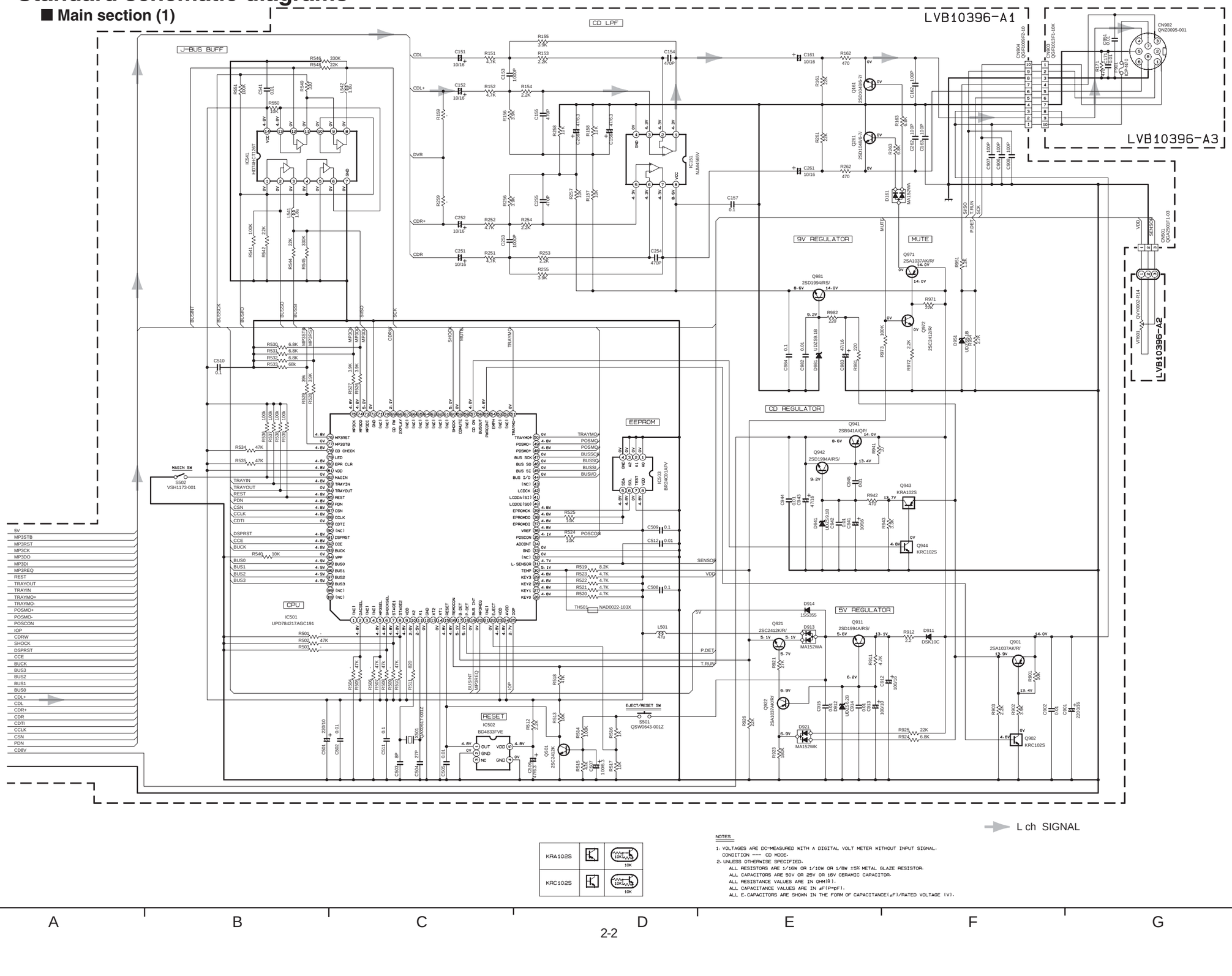
⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

Block diagram



Standard schematic diagrams

■ Main section (1)

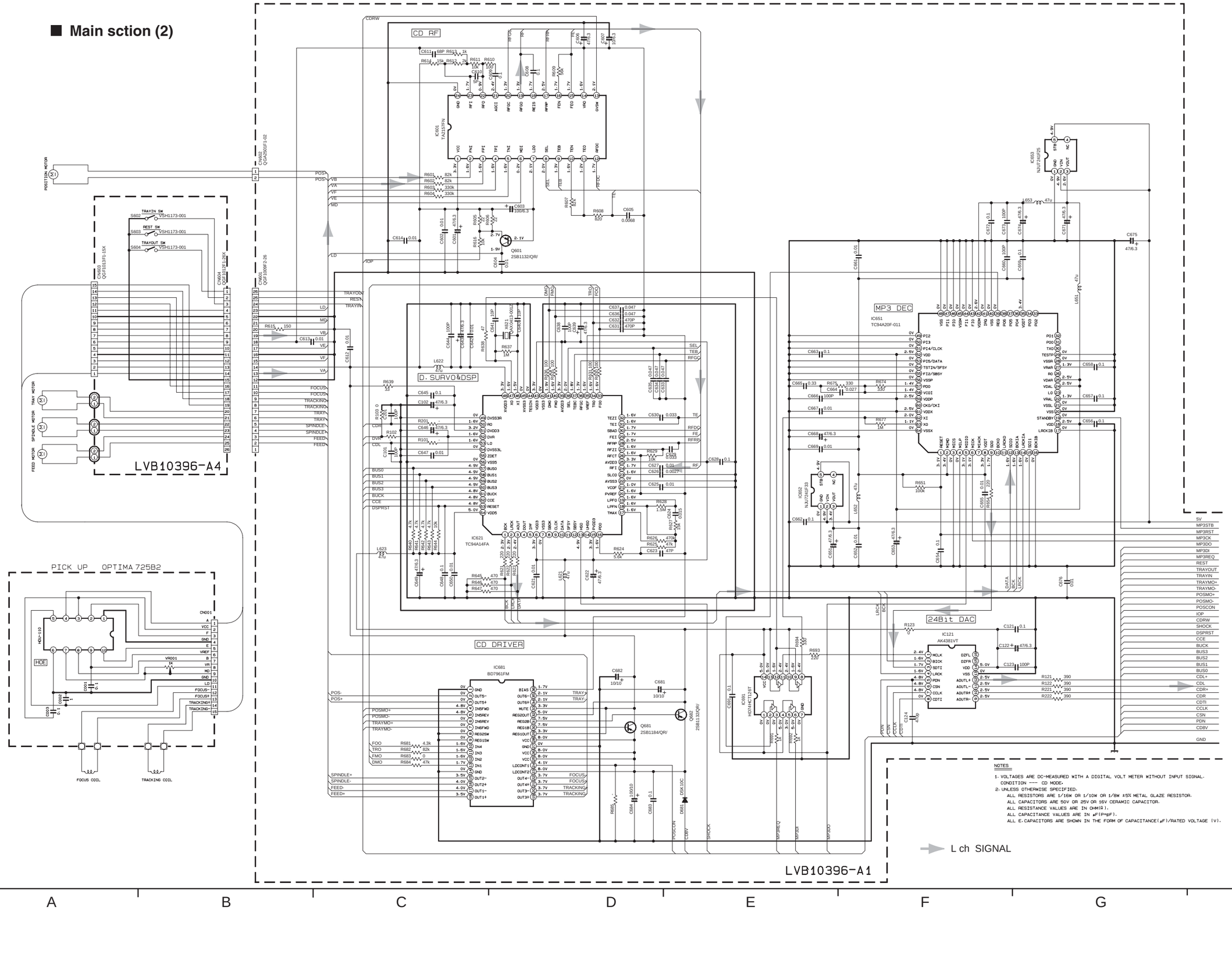


KRA102S	10K
KRC102S	10K

NOTES

1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
   CONDITION ---- CD MODE.
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/16W OR 1/10W OR 1/8W ±5% METAL GLAZE RESISTOR.
   ALL CAPACITORS ARE 50V OR 25V OR 16V CERAMIC CAPACITOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL E-CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(μF)/RATED VOLTAGE (V).

■ Main sction (2)

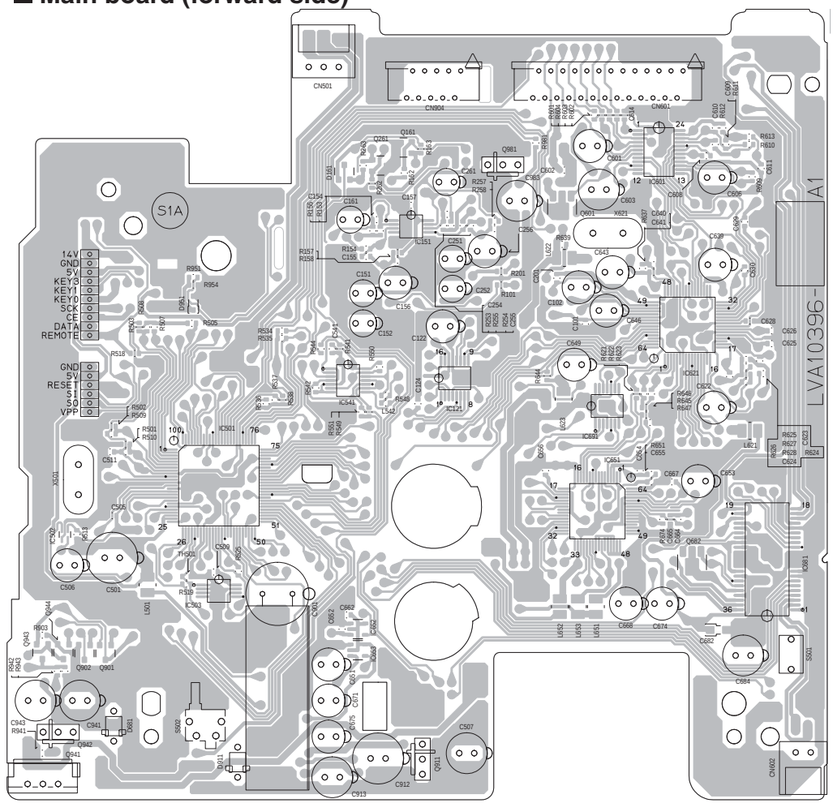


NOTES

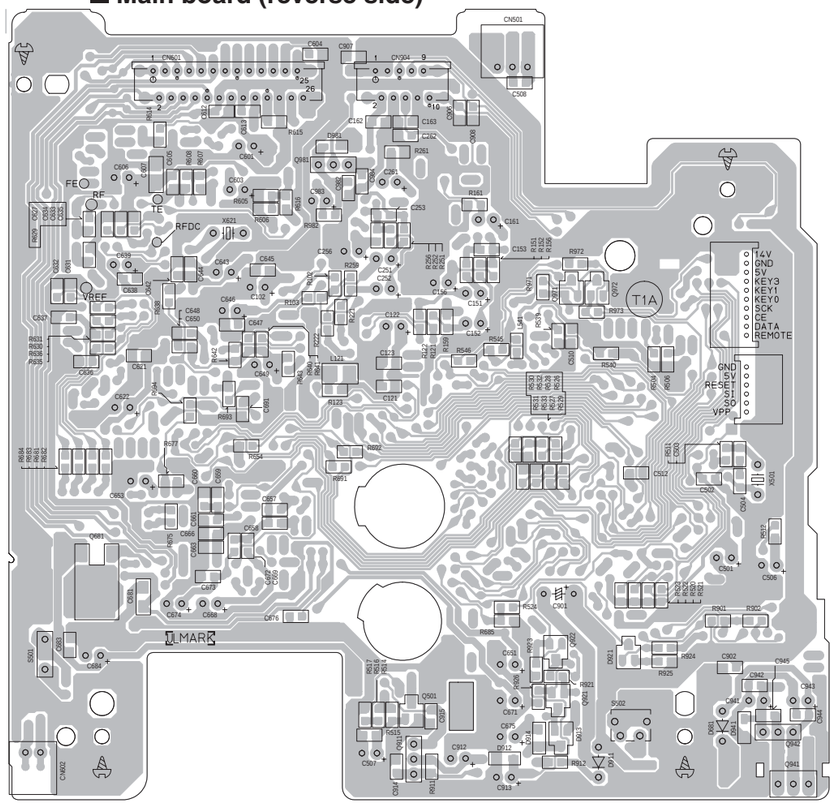
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
   CONDITION ---- CD MODE.
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/16W OR 1/10W OR 1/8W ±5% METAL GLAZE RESISTOR.
   ALL CAPACITORS ARE 50V OR 25V OR 16V CERAMIC CAPACITOR.
   ALL RESISTANCE VALUES ARE IN OHM(Ω).
   ALL CAPACITANCE VALUES ARE IN μF(P=pF).
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(μF)/RATED VOLTAGE (V).

Printed circuit baords

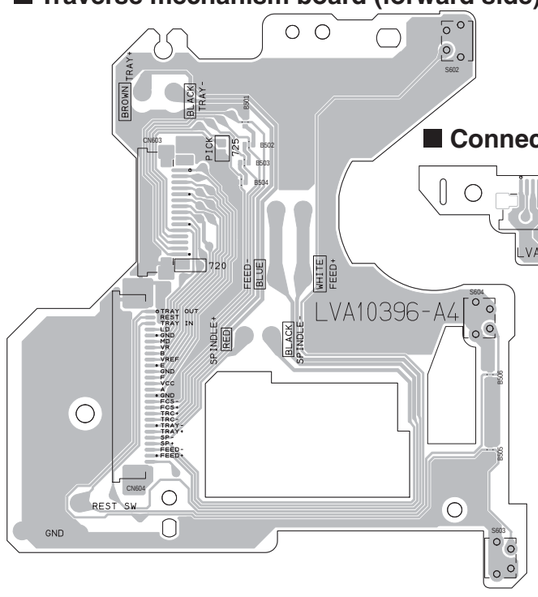
■ Main board (forward side)



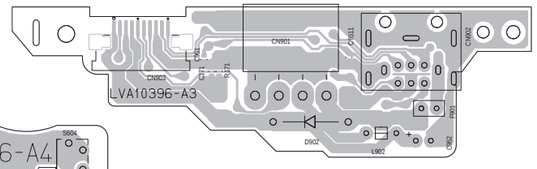
■ Main board (reverse side)



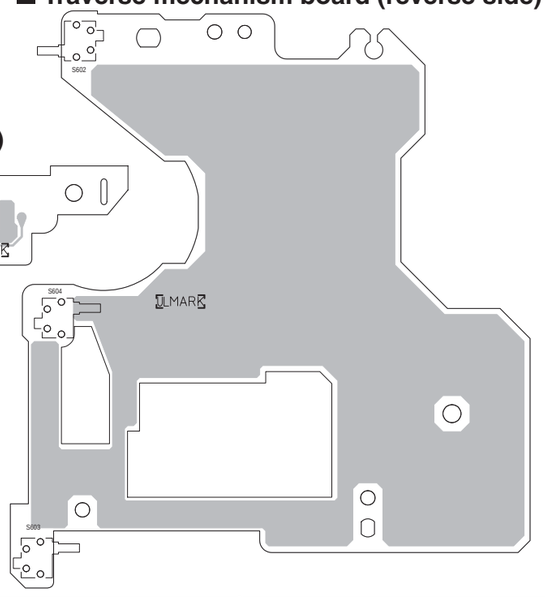
■ Traverse mechanism board (forward side)



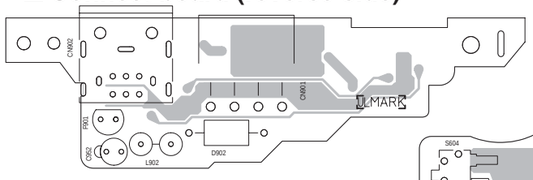
■ Connect board (forward side)



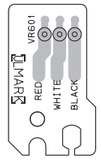
■ Traverse mechanism board (reverse side)



■ Connect board (reverse side)



■ Sensor board (reverse side)



< MEMO >

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(No.49776SCH)

Printed in Japan
200301

PARTS LIST

[CH-X1500]

* All printed circuit boards and its assemblies are not available as service parts.

Area suffix

E ---------- Continental Europe
J ---------- Northern America
U ---------- Other Areas

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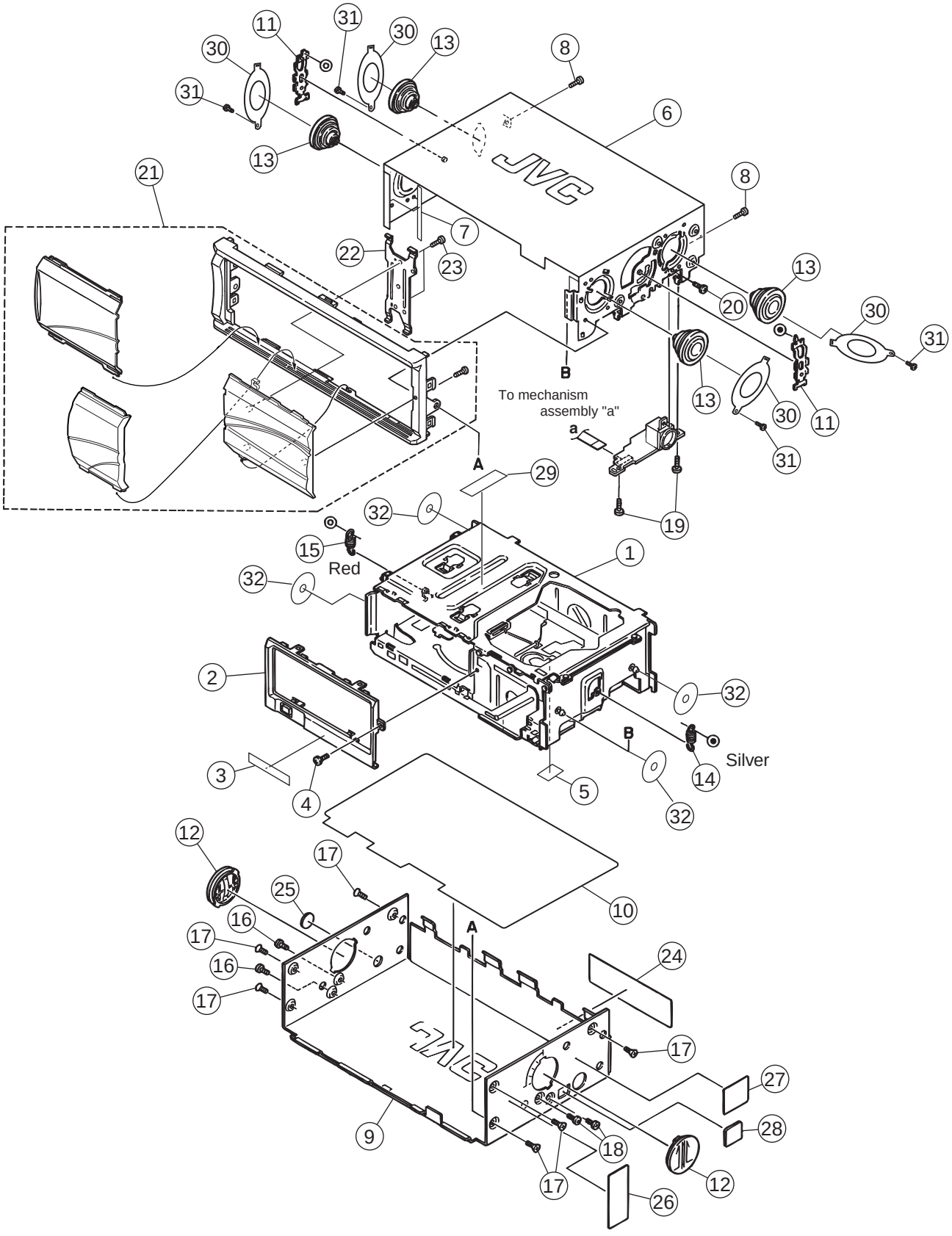
Exploded view of general assembly and parts list (Block No.M1) ---------- 3- 2
CD changer mechanism assembly and parts list (Block No.MA) ---------- 3- 4
Electrical parts list (Block No.01) ---------- 3- 7
Packing materials and accessories parts list (Block No.M3,M5) ---------- 3-10

Exploded view of general assembly and parts list

Block No. M 1 M M



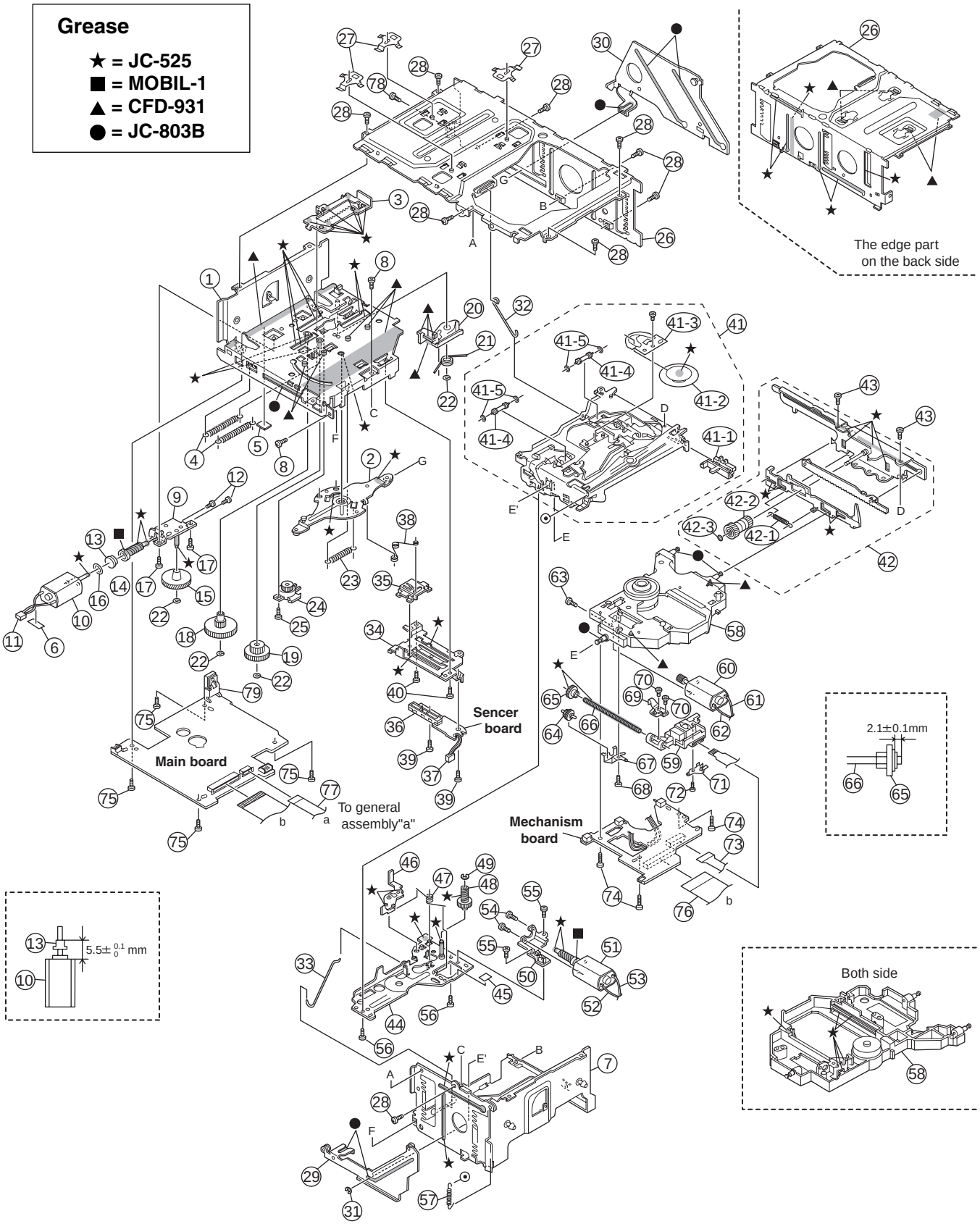
■ Parts list (General assembly)

Block No. M1MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	1	----------	CD CHANGER MECH	1		
	2	LV20065-004B	FITTING	1		
	3	LV40706-003A	CAUTION LABEL	1		
	4	QYSDST2004Z	SCREW	1		
	5	LV41266-001A	SPACER	1		
	6	LV10407-006A	TOP COVER	1		
	7	VYSH101-031	SPACER	1		
	8	QYSSST2005M	SCREW	2		
	9	LV10408-006A	BOTTOM COVER	1		
	10	LV30632-001A	INSULATOR	1		
	11	LV42152-001A	BRACKET	2		
	12	LV30360-004A	DIRECTION KNOB	2	BOTTOM REAR SID	
	13	LV30451-002A	DAMPER	4		
	14	LV42757-001A	DAMPER SP(R)	1		U
		LV40345-003A	DAMPER SP(R)	1		J,E
	15	LV40346-003A	DAMPER SP(L)	1		J,E
		LV42756-001A	DAMPER SP(L)	1		U
	16	QYSDST2604M	SCREW	2		
	17	QYSSST2605M	SCREW	6		
	18	QYSDST2604M	SCREW	2		
	19	QYSDST2005Z	SCREW	2	PWB+TOP	
	20	QYSDST2606Z	SCREW	1	8P+TOP	
	21	LV21396-001A	F.PANEL ASS'Y	1		U
		LV21396-002A	F.PANEL ASS'Y	1		E
		LV21396-004A	F.PANEL ASS'Y	1	FOR CH-X1500	J
	22	LV30786-003A	HOLD BRACKET	1		
	23	QYSDSF2005Z	SCREW	2	DOOR-3+HOLD BKT	
	24	LV33919-001A	NAME PLATE	1		J
		LV33920-001A	NAME PLATE	1		E
		LV33921-001A	NAME PLATE	1		U
	25	VYSS2R2-028	SPACER	1		
	26	LV40762-001A	CAUTION LABEL	1		
	27	LV40487-003A	CAUTION LABEL	1		
	28	LV40528-005A	LABEL	1		
	29	LV41843-001A	LASER CAUTION	1		U,E
	30	LV40529-002A-SK	DAMPER BRACKET	4		U
	31	QYSDST2005Z	SCREW	4		U
	32	LV42918-001A	DAMPER SHEET	4		U

CD changer mechanism assembly and parts list

Block No. M A M M



■ Parts list (CD changer mechanism)

Block No. MAMM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	1	LV30096-004A	CHASSIS(L)ASSY	1		
	2	LV40123-006A	LIFT ARM ASSY	1		
	3	LV30098-003A	EJECT SLIDER	1		
	4	LV40126-005A	EJECT SPRING	2		
	5	VYSH102-102	SPACER	1		
	6	VYSA1R4-056	SPACER	1		
	7	LV30097-001A	CHASSIS(R) ASSY	1		
	8	QYSDST2004Z	SCREW	2		
	9	LV42097-001A	MOTOR BKT ASS'Y	1		
	10	PPN-13KA10C	MOTOR	1		
	11	WJM0017-001A	E-SI C WIRE C-F	1		
	12	QYSPSPT2025M	MINI SCREW	2		
	13	LV32442-001A	WORM DRIVE	1		
	14	LV32440-001A	WORM GEAR	1		
	15	LV32441-001A	WORM WHEEL(P)	1		
	16	QYWFM164025	WASHER	1		
	17	QYSDST2004Z	SCREW	2		
	18	LV40132-003A	THIRD GEAR	1		
	19	LV40133-005A	LIFTER GEAR	1		
	20	LV30100-002A	APLOCK ARM	1		
	21	LV40134-003A	M.LOCK SPRING	1		
	22	QYWDL163525-6	SLIT WASHER	4		
	23	LV40142-003A	LIFTER SPRING	1		
	24	LV40478-002A	EJECT DAMPER	1		
	25	QYSDSR2006Z	SCREW	1		
	26	LV10027-002A	TOP COVER	1		
	27	LV30101-004A	MAGAZINE SPRING	3		
	28	QYSDST2004Z	SCREW	9		
	29	LV30448-001A	FRONT SLIDER AS	1		
	30	LV30449-001A	REAR SLIDER ASS	1		
	31	LV42132-001A	E RING	1		
	32	LV40135-004A	ROD(U)	1		
	33	LV40136-003A	ROD(L)	1		
	34	LV30104-002A	SENSOR BRACKET	1		
	35	LV30105-001A	SENSOR HOLDER	1		
	36	QVY0002-B14	S V RESISTOR	1		
	37	WJM0017-002A	E-SI C WIRE C-F	1		
	38	LV40137-002A	SENSOR SPRING	1		
	39	QYSDST2004Z	SCREW	2		
	40	QYSDST2004Z	SCREW	2		
	41	LV20067-002A-N	LIFTER UNIT	1		
	42	LV30148-004A-N	SIDE BKT UNIT	1		
	43	QYSDST2004Z	SCREW	2		
	44	LV40149-003A	L.BKT(L) ASSY	1		
	45	VYSA1R4-088	SPACER	1		
	46	LV30119-003A	SWITCH LEVER	1		
	47	LV40151-002A	SWITCH SPRING	1		
	48	LV40152-001A	WORM WHEEL(T)	1		

■ Parts list (CD changer mechanism)

Block No. MAMM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	49	REE1500X	E RING	1		
	50	LV30120-001A	T.MOTOR HOLDER	1		
	51	PPN-13KA10C	MOTOR	1		
	52	QUB540-10A2A2	WIRE(T.MOTOR)	1		
	53	QUB541-11A2A2	WIRE(T.MOTOR)	1		
	54	QYSPSPL2004Z	SCREW	2		
	55	QYSDST2004Z	SCREW	2		
	56	QYSDST2004Z	SCREW	2		
	57	LV40474-003A	ELEVATOR SPRING	1		
	58	LV32806-001A-SL	TRA MECHA UNIT	1		
	59	OPTIMA-725B2M	CD PICK UP	1		
	60	FF-050SK-11170	DC MOTOR	1		
	61	QUB456-04A2A2	WIRE(F.MOTOR)	1		
	62	QUB459-05A2A2	WIRE(F.MOTOR)	1		
	63	QYSPSPL2004Z	SCREW	1		
	64	LV40155-001A	MIDDLE GEAR	1		
	65	LV40156-001A	S.S. GEAR	1		
	66	LV40157-001A	SCREW SHAFT	1		
	67	LV30122-002A	SHAFT HOLDER	1		
	68	VKZ4248-204	MINI TAP SCREW	1		
	69	LV30123-002A	RACK ARM	1		
	70	QYSPSPT1722M	MINI SCREW	2		
	71	LV32438-001A	P.S.SPRING	1		
	72	QYSPSGT1425M	TAP SCREW	1		
	73	LV30450-004A	PICK FPC	1		
	74	QYSDST2006Z	SCREW	3		
	75	QYSDST2005Z	SCREW	4		
	76	QUQ710-2614BJ	FFC WIRE	1		
	77	QUQ110-1013BJ	FFC WIRE	1		
	78	QYSDSP2606Z	SCREW	1		
	41-1	LV30110-001A	HOOK	1		
	41-2	VKR3203-001	CLAMPER	1		
	41-3	VKL7938-001	CLAMPER GUIDE	1		
	41-4	VKS5587-002	DETECT ROLLER	2		
	41-5	VKZ4563-005	O RING	4		
	42-1	LV40190-002A	RETURN SP.(R)	1		
	42-2	LV40148-003A	TRAY GEAR	1		
	42-3	QYWDL163525-6	SLIT WASHER	1		

■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	C 121	NCB31CK-104X	C CAPACITOR		
	C 122	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 123	NDC31HJ-101X	C CAPACITOR		
	C 124	NCS31HJ-471X	C CAPACITOR		
	C 151	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 152	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 153	NCB31HK-102X	C CAPACITOR		
	C 154	NCS31HJ-471X	C CAPACITOR		
	C 155	NCS31HJ-471X	C CAPACITOR		
	C 156	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 157	NCB31CK-104X	C CAPACITOR		
	C 161	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 162	NDC31HJ-101X	C.CAPACITOR		
	C 163	NDC31HJ-101X	C.CAPACITOR		
	C 171	NCB31HK-103X	C CAPACITOR		
	C 251	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 252	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 253	NCB31HK-102X	C CAPACITOR		
	C 254	NCS31HJ-471X	C CAPACITOR		
	C 255	NCS31HJ-471X	C CAPACITOR		
	C 256	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 261	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 262	NDC31HJ-101X	C.CAPACITOR		
	C 501	QERF1AM-227Z	E CAPACITOR	220MF 20% 10V	
	C 502	NCB31HK-103X	C CAPACITOR		
	C 503	NDC31HJ-8R0X	C CAPACITOR		
	C 504	NDC31HJ-270X	C-CAPACITOR		
	C 505	NCB31HK-103X	C CAPACITOR		
	C 506	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 507	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 508	NCB31CK-104X	C CAPACITOR		
	C 509	NCB31CK-104X	C CAPACITOR		
	C 510	NCB31CK-104X	C CAPACITOR		
	C 511	NCB31CK-104X	C CAPACITOR		
	C 512	NCB31HK-103X	C CAPACITOR		
	C 541	NCB31HK-103X	C CAPACITOR		
	C 601	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 602	NCB31HK-103X	C CAPACITOR		
	C 603	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 604	NCB31HK-103X	C CAPACITOR		
	C 605	NCB31HK-682X	C CAPACITOR		
	C 606	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 607	NBE20JM-106X	TS E CAP SVB20J		
	C 608	NCB31CK-104X	C CAPACITOR		
	C 609	NCB31CK-104X	C CAPACITOR		
	C 610	NDC31HJ-5R0X	C CAPACITOR		
	C 611	NDC31HJ-680X	C CAPACITOR		
	C 612	NCB31HK-103X	C CAPACITOR		
	C 613	NCB31HK-103X	C CAPACITOR		
	C 614	NCB31HK-103X	C CAPACITOR		
	C 621	NCB31HK-103X	C CAPACITOR		
	C 622	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 623	NDC31HJ-470X	C CAPACITOR		
	C 624	NCB31HK-153X	C CAPACITOR		
	C 625	NCB31HK-103X	C CAPACITOR		
	C 626	NCB31HK-272X	C CAPACITOR		
	C 627	NCB31HK-103X	C CAPACITOR		
	C 628	NCB31CK-104X	C CAPACITOR		
	C 629	NCB31EK-333X	C CAPACITOR		
	C 630	NCB31EK-333X	C CAPACITOR		
	C 631	NCS31HJ-471X	C CAPACITOR		
	C 632	NCS31HJ-471X	C CAPACITOR		
	C 633	NCB31CK-473X	C CAPACITOR		
	C 634	NCB31CK-473X	C CAPACITOR		
	C 635	NCB31CK-473X	C CAPACITOR		
	C 636	NCB31CK-473X	C CAPACITOR		

⚠	Item	Parts number	Parts name	Remarks	Area
	C 637	NCB31CK-473X	C CAPACITOR		
	C 638	NDC31HJ-101X	C CAPACITOR		
	C 639	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 640	NDC31HJ-100X	C CAPACITOR		
	C 641	NDC31HJ-100X	C CAPACITOR		
	C 642	NCB31HK-103X	C CAPACITOR		
	C 643	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 644	NDC31HJ-101X	C CAPACITOR		
	C 645	NCB31CK-104X	C CAPACITOR		
	C 647	NCB31HK-103X	C CAPACITOR		
	C 648	NCB31CK-104X	C CAPACITOR		
	C 649	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 650	NCB31HK-103X	C CAPACITOR		
	C 651	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 652	NCB31HK-103X	C CAPACITOR		
	C 653	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 654	NCB31CK-104X	C CAPACITOR		
	C 655	NCB31HK-103X	C CAPACITOR		
	C 656	NCB31CK-104X	C CAPACITOR		
	C 657	NCB31CK-104X	C CAPACITOR		
	C 658	NCB31CK-104X	C CAPACITOR		
	C 659	NCB31CK-104X	C CAPACITOR		
	C 660	NDC31HJ-101X	C CAPACITOR		
	C 661	NCB31HK-103X	C CAPACITOR		
	C 662	NCB31CK-104X	C CAPACITOR		
	C 663	NCB31CK-104X	C CAPACITOR		
	C 664	NCB31EK-273X	C CAPACITOR		
	C 665	NCB31AK-334X	C CAPACITOR		
	C 666	NDC31HJ-101X	C CAPACITOR		
	C 667	NCB31HK-103X	C CAPACITOR		
	C 668	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 669	NCB31HK-103X	C CAPACITOR		
	C 671	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 672	NCB31CK-104X	C CAPACITOR		
	C 673	NDC31HJ-101X	C CAPACITOR		
	C 674	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 675	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 676	NCB31HK-103X	C CAPACITOR		
	C 681	NBE21AM-106X	E CAPACITOR		
	C 682	NBE21AM-106X	E CAPACITOR		
	C 683	NCB31CK-104X	C CAPACITOR		
	C 684	QERF1AM-107Z	E CAPACITOR	100MF 20% 10V	
	C 691	NCB31CK-104X	C CAPACITOR		
	C 901	QEZ0338-228	E CAPACITOR	2200MF	
	C 902	NCB31HK-103X	C CAPACITOR		
	C 906	NDC31HJ-101X	C.CAPACITOR		
	C 907	NDC31HJ-101X	C.CAPACITOR		
	C 908	NDC31HJ-101X	C.CAPACITOR		
	C 912	QERF1CM-107Z	E CAPACITOR	100MF 20% 16V	
	C 913	QERF1AM-107Z	E CAPACITOR	100MF 20% 10V	
	C 914	NCB31HK-103X	C CAPACITOR		
	C 915	NCB31HK-103X	C CAPACITOR		
	C 941	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 942	NCB31HK-103X	C CAPACITOR		
	C 943	QERF1CM-476Z	E CAPACITOR	47MF 20% 16V	
	C 944	NCB31HK-103X	C CAPACITOR		
	C 945	NCB31HK-103X	C CAPACITOR		
	C 951	NCB31HK-103X	C CAPACITOR		
	C 982	NCB31HK-103X	C CAPACITOR		
	C 983	QERF1CM-476Z	E CAPACITOR	47MF 20% 16V	
	C 984	NCB31CK-104X	C CAPACITOR		
	CN501	QGA2501F1-03	CONNECTOR		
	CN601	QGF1009F2-26	CONNECTOR		
	CN602	QGA2501F1-02	CONNECTOR		
	CN603	QGF1013F1-15X	FPC CONNE		
	CN604	QGF1006F1-26W	FPC CONNE		

■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	CN902	QNZ0095-001	CONNECTOR		
	CN903	QGF1013F1-10X	FPC CONNECTOR		
	CN904	QGF1009F2-10	CONNECTOR		
	D 161	MA152WA-X	DIODE		
	D 681	DSK10C-T1	DIODE		
	D 911	DSK10C-T1	DIODE		
	D 912	UDZS6.2B-X	SI DIODE		
	D 913	MA152WA-X	DIODE		
	D 914	1SS355-X	DIODE		
	D 921	MA152WK-X	SI DIODE		
	D 941	UDZS9.1B-X	Z DIODE		
	D 951	UDZS5.1B-X	Z DIODE		
	D 981	UDZS9.1B-X	Z DIODE		
	F 901	ICP-N70	IC PROTECTER		
	IC121	AK4381VT-X	IC		
	IC151	NJM4565V-X	IC		
	IC501	UPD784217AGC212	IC		
	IC502	BD4833FVE-W	IC		
	IC503	BR24C01AFV-W-X	IC		
	IC541	HD74HCT126T-X	IC		
	IC601	TA2157FN-X	IC		
	IC621	TC94A14FA	IC		
	IC651	TC94A20F-011	IC		
	IC652	NJU7241F33-X	IC		
	IC653	NJU7241F25-X	IC		
	IC681	BD7961FM-X	IC		
	IC691	HD74HCT126T-X	IC		
	L 501	NQL114K-470X	INDUCTOR		
	L 541	NQL093K-1R8X	CHIP INDUCTOR		
	L 542	NQL093K-1R8X	CHIP INDUCTOR		
	L 621	NQL114K-470X	INDUCTOR		
	L 622	NQL114K-470X	INDUCTOR		
	L 623	NQL114K-470X	INDUCTOR		
	L 651	NQL114K-470X	INDUCTOR		
	L 652	NQL114K-470X	INDUCTOR		
	L 653	NQL114K-470X	INDUCTOR		
	O 161	2SD1048/6-7/-X	TRANSISTOR		
	O 261	2SD1048/6-7/-X	TRANSISTOR		
	Q 501	2SC2412K/R/-X	TRANSISTOR		
	O 601	2SB1132/QR/-W	CHIP.TRANSISTOR		
	Q 681	2SB1184/QR/-X	TRANSISTOR		
	O 682	2SB1132/QR/-W	CHIP.TRANSISTOR		
	Q 901	2SA1037AK/R/-X	TRANSISTOR		
	O 902	KRC102S-X	DIGITAL.TR		
	Q 911	2SD1994A/RS/-T	TRANSISTOR		
	O 921	2SC2412K/R/-X	TRANSISTOR		
	Q 922	2SA1037AK/R/-X	TRANSISTOR		
	O 941	2SB941A/QP/	TRANSISTOR		
	O 942	2SD1994A/RS/-T	TRANSISTOR		
	O 943	KRA102S-X	DIGITAL.TR		
	O 944	KRC102S-X	DIGITAL.TR		
	O 971	2SA1037AK/R/-X	TRANSISTOR		
	O 972	2SC2412K/R/-X	TRANSISTOR		
	O 981	2SD1994A/RS/-T	TRANSISTOR		
	R 103	NRSA63J-0R0X	MG RESISTOR		
	R 121	NRSA63J-391X	MG RESISTOR		
	R 122	NRSA63J-391X	MG RESISTOR		
	R 123	NRSA63J-0R0X	MG RESISTOR		
	R 151	NRSA63J-472X	MG RESISTOR		
	R 152	NRSA63J-472X	MG RESISTOR		
	R 153	NRSA63J-222X	MG RESISTOR		
	R 154	NRSA63J-222X	MG RESISTOR		
	R 155	NRSA63J-392X	MG RESISTOR		
	R 156	NRSA63J-392X	MG RESISTOR		
	R 157	NRSA63J-103X	MG RESISTOR		
	R 158	NRSA63J-103X	MG RESISTOR		

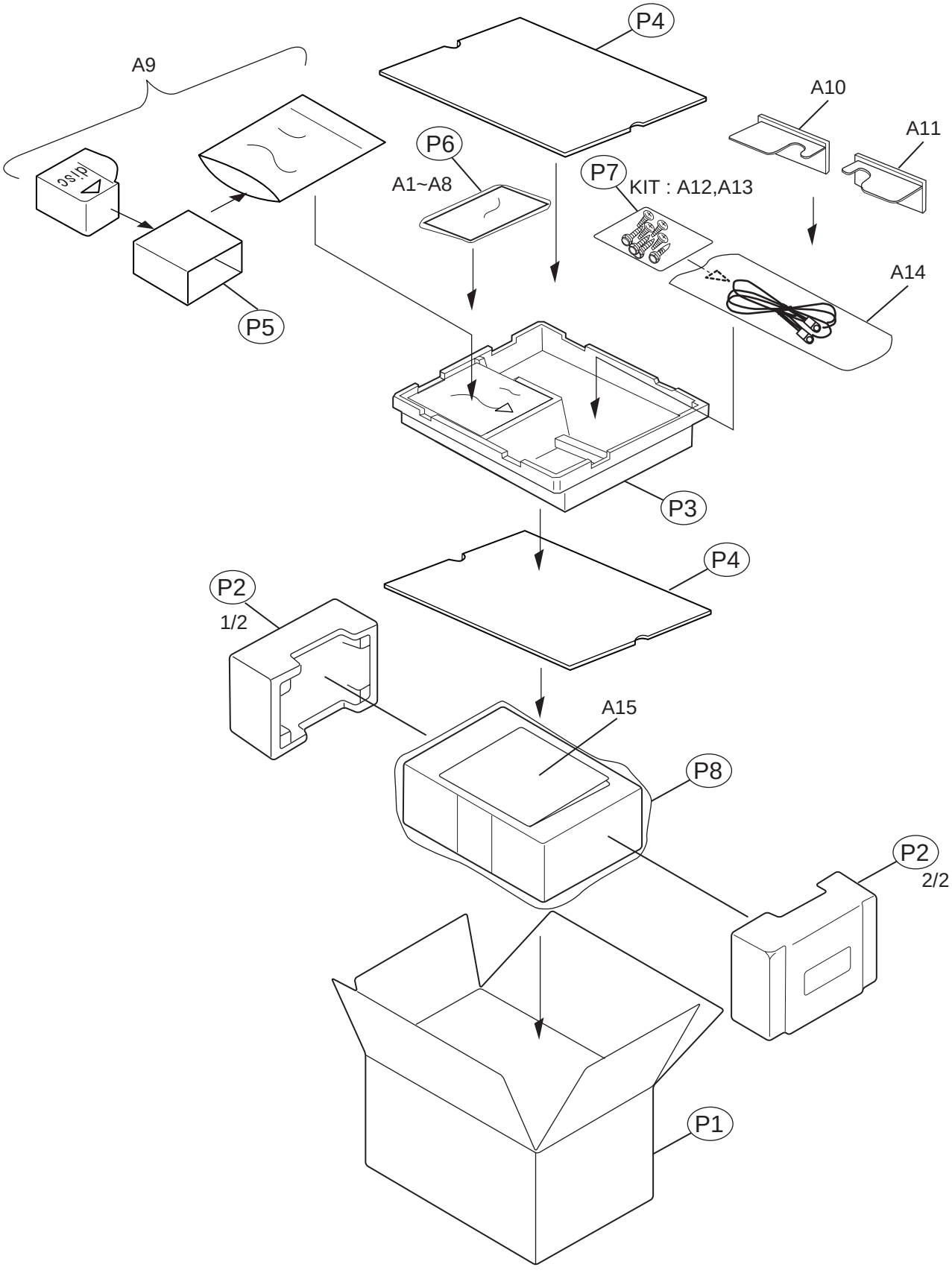
⚠	Item	Parts number	Parts name	Remarks	Area
	R 161	NRSA63J-223X	MG RESISTOR		
	R 162	NRSA63J-471X	MG RESISTOR		
	R 163	NRSA63J-682X	MG RESISTOR		
	R 171	NRSA63J-471X	MG RESISTOR		
	R 221	NRSA63J-391X	MG RESISTOR		
	R 222	NRSA63J-391X	MG RESISTOR		
	R 251	NRSA63J-472X	MG RESISTOR		
	R 252	NRSA63J-472X	MG RESISTOR		
	R 253	NRSA63J-222X	MG RESISTOR		
	R 254	NRSA63J-222X	MG RESISTOR		
	R 255	NRSA63J-392X	MG RESISTOR		
	R 256	NRSA63J-392X	MG RESISTOR		
	R 257	NRSA63J-103X	MG RESISTOR		
	R 258	NRSA63J-103X	MG RESISTOR		
	R 261	NRSA63J-223X	MG RESISTOR		
	R 262	NRSA63J-471X	MG RESISTOR		
	R 263	NRSA63J-682X	MG RESISTOR		
	R 502	NRSA63J-473X	MG RESISTOR		
	R 505	NRSA63J-473X	MG RESISTOR		
	R 507	NRSA63J-473X	MG RESISTOR		
	R 508	NRSA63J-473X	MG RESISTOR		
	R 510	NRSA63J-473X	MG RESISTOR		
	R 511	NRSA63J-821X	MG RESISTOR		
	R 512	NRSA63J-222X	MG RESISTOR		
	R 513	NRSA63J-103X	MG RESISTOR		
	R 514	NRSA63J-104X	MG RESISTOR		
	R 515	NRSA63J-473X	MG RESISTOR		
	R 516	NRSA63J-102X	MG RESISTOR		
	R 517	NRSA63J-103X	MG RESISTOR		
	R 518	NRSA63J-473X	MG RESISTOR		
	R 519	NRSA63J-822X	MG RESISTOR		
	R 520	NRSA63J-472X	MG RESISTOR		
	R 521	NRSA63J-472X	MG RESISTOR		
	R 522	NRSA63J-472X	MG RESISTOR		
	R 523	NRSA63J-472X	MG RESISTOR		
	R 524	NRSA63J-103X	MG RESISTOR		
	R 525	NRSA63J-103X	MG RESISTOR		
	R 526	NRSA63J-392X	MG RESISTOR		
	R 527	NRSA63J-392X	MG RESISTOR		
	R 528	NRSA63J-392X	MG RESISTOR		
	R 529	NRSA63J-393X	MG RESISTOR		
	R 530	NRSA63J-682X	MG RESISTOR		
	R 531	NRSA63J-682X	MG RESISTOR		
	R 532	NRSA63J-682X	MG RESISTOR		
	R 533	NRSA63J-683X	MG RESISTOR		
	R 534	NRSA63J-473X	MG RESISTOR		
	R 535	NRSA63J-473X	MG RESISTOR		
	R 536	NRSA63J-104X	MG RESISTOR		
	R 537	NRSA63J-104X	MG RESISTOR		
	R 538	NRSA63J-104X	MG RESISTOR		
	R 539	NRSA63J-104X	MG RESISTOR		
	R 540	NRSA63J-103X	MG RESISTOR		
	R 541	NRSA63J-104X	MG RESISTOR		
	R 542	NRSA63J-223X	MG RESISTOR		
	R 544	NRSA63J-223X	MG RESISTOR		
	R 545	NRSA63J-334X	MG RESISTOR		
	R 546	NRSA63J-334X	MG RESISTOR		
	R 548	NRSA63J-223X	MG RESISTOR		
	R 549	NRSA63J-331X	MG RESISTOR		
	R 550	NRSA63J-103X	MG RESISTOR		
	R 551	NRSA63J-104X	MG RESISTOR		
	R 601	NRSA63J-823X	MG RESISTOR		
	R 602	NRSA63J-823X	MG RESISTOR		
	R 603	NRSA63J-334X	MG RESISTOR		
	R 604	NRSA63J-334X	MG RESISTOR		
	R 605	NRSA63J-220X	MG RESISTOR		

■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	R 606	NRSA63J-220X	MG RESISTOR		
	R 607	NRSA63J-823X	MG RESISTOR		
	R 608	NRSA63J-821X	MG RESISTOR		
	R 609	NRSA63J-563X	MG RESISTOR		
	R 610	NRSA63J-101X	MG RESISTOR		
	R 611	NRSA63J-103X	MG RESISTOR		
	R 612	NRSA63J-202X	MG RESISTOR		
	R 613	NRSA63J-102X	MG RESISTOR		
	R 614	NRSA63J-153X	MG RESISTOR		
	R 615	NRSA63J-151X	MG RESISTOR		
	R 616	NRSA63J-103X	MG RESISTOR		
	R 621	NRSA63J-221X	MG RESISTOR		
	R 622	NRSA63J-221X	MG RESISTOR		
	R 623	NRSA63J-221X	MG RESISTOR		
	R 624	NRSA63J-562X	MG RESISTOR		
	R 625	NRSA63J-473X	MG RESISTOR		
	R 626	NRSA63J-474X	MG RESISTOR		
	R 627	NRSA63J-153X	MG RESISTOR		
	R 628	NRSA63J-155X	MG RESISTOR		
	R 629	NRSA63J-103X	MG RESISTOR		
	R 630	NRSA63J-101X	MG RESISTOR		
	R 631	NRSA63J-101X	MG RESISTOR		
	R 635	NRSA63J-101X	MG RESISTOR		
	R 636	NRSA63J-101X	MG RESISTOR		
	R 637	NRSA63J-105X	MG RESISTOR		
	R 638	NRSA63J-470X	MG RESISTOR		
	R 639	NRSA63J-330X	MG RESISTOR		
	R 640	NRSA63J-472X	MG RESISTOR		
	R 641	NRSA63J-472X	MG RESISTOR		
	R 642	NRSA63J-472X	MG RESISTOR		
	R 643	NRSA63J-472X	MG RESISTOR		
	R 644	NRSA63J-103X	MG RESISTOR		
	R 645	NRSA63J-471X	MG RESISTOR		
	R 646	NRSA63J-471X	MG RESISTOR		
	R 647	NRSA63J-471X	MG RESISTOR		
	R 651	NRSA63J-104X	MG RESISTOR		
	R 654	NRSA63J-221X	MG RESISTOR		
	R 674	NRSA63J-331X	MG RESISTOR		
	R 675	NRSA63J-331X	MG RESISTOR		
	R 677	NRSA63J-105X	MG RESISTOR		
	R 681	NRSA63J-432X	MG RESISTOR		
	R 682	NRSA63J-823X	MG RESISTOR		
	R 683	NRSA63J-0R0X	MG RESISTOR		
	R 684	NRSA63J-473X	MG RESISTOR		
	R 691	NRSA63J-102X	MG RESISTOR		
	R 692	NRSA63J-102X	MG RESISTOR		
	R 693	NRSA63J-221X	MG RESISTOR		
	R 694	NRSA63J-331X	MG RESISTOR		
	R 901	NRSA63J-103X	MG RESISTOR		
	R 902	NRSA63J-392X	MG RESISTOR		
	R 903	NRSA63J-222X	MG RESISTOR		
	R 911	NRSA63J-472X	MG RESISTOR		
	R 912	NRSA02J-2R2X	MG RESISTOR		
	R 921	NRSA63J-273X	MG RESISTOR		
	R 923	NRSA63J-184X	MG RESISTOR		
	R 924	NRSA63J-682X	MG RESISTOR		
	R 925	NRSA63J-223X	MG RESISTOR		
	R 926	NRSA63J-223X	MG RESISTOR		
	R 941	NRSA63J-100X	MG RESISTOR		
	R 942	NRSA63J-471X	MG RESISTOR		
	R 943	NRSA63J-332X	MG RESISTOR		
	R 951	NRSA63J-122X	MG RESISTOR		
	R 954	NRSA63J-272X	MG RESISTOR		
	R 971	NRSA63J-223X	MG RESISTOR		
	R 972	NRSA63J-222X	MG RESISTOR		
	R 973	NRSA63J-104X	MG RESISTOR		
	R 981	NRSA63J-221X	MG RESISTOR		
	R 982	NRSA63J-221X	MG RESISTOR		
	S 501	QSW0643-001Z	TACT SWITCH		
	S 502	VSH1173-001	SWITCH		
	S 602	VSH1173-001	SWITCH		
	S 603	VSH1173-001	SWITCH		
	S 604	VSH1173-001	SWITCH		
	X 501	QAX0617-001Z	CRYSTAL		
	X 621	QAX0413-001Z	CRYSTAL		

Packing materials and accessories parts list

Block No. M 3 M M
Block No. M 5 M M



■ Parts list (Packing)

Block No. M3MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	P 1	LV33922-001A	CARTON	1	CH-X1500J	
	P 2	LV10504-001A	CUSHION	1		
	P 3	LV10355-001A	PAPER CUSHION	1	ACC BOX	
	P 4	LV31895-001A	CUSHION SHEET	2		
	P 5	LV31896-001A	CUSHION SLEEVE	1	FOR MAGAZINE	
	P 6	FSPG4002-001	POLY BAG	1		
	P 7	QPA00801205	POLY BAG	1	SCREW SA	
	P 8	QPC03005120P	POLY BAG	1	FOR UNIT	

■ Parts list (Accessories)

Block No. M5MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	A 1	LVT0975-002A	INST BOOK	1	ENG,GER,FRE	E
		LVT0975-003A	INST BOOK	1	DUT,SPA,ITA	E
		LVT0975-004A	INST BOOK	1	POL,RUS,GRE	E
		LVT0975-006A	INST BOOK	1	ENG,CHI,ARA	U
		LVT0975-007A	INST BOOK	1	THA	U
		LVT0975-008A	INST BOOK	1	KOR	U
		LVT0975-001A	INST BOOK	1	ENG,SPA,FRE	J
	A 2	BT-51018-3	WARRANTY CARD	1		J
	A 3	BT-51028-2	J=REGIST CARD	1		J
	A 4	BT-20071B	JVC CENTER LIST	1		J
	A 5	BT-52006-2	WARRANTY CARD	1		J
	A 6	LVT0770-002C	INST SHEET	1		E
		LVT0918-001B	INST SHEET	1		U
		LVT0770-003C	INST SHEET	1	MP3	J
	A 7	LVT0327-001B	TROUBLE SHOOTIN	1		J
	A 8	BT-54013-5	WARRANTY CARD	1		E
	A 9	LV33160-001A	MAGAZINE ASS'Y	1		E
		LV30682-205A-CL	MAGAZINE ASS'Y	1		J,U
	A 10	LV21416-001A	MOUNT HOLDER(L)	1		J,U
		LV20738-002A	MOUNT HOLDER(L)	1		E
	A 11	LV21415-001A	MOUNT HOLDER(R)	1		J,U
		LV20737-002A	MOUNT HOLDER(R)	1		E
	A 12	QYSDSP4008Z	SCREW	4		
	A 13	VKZ4029-003	SCREW	4	M5 X 20	
	A 14	QAM0080-001	8P BUS-BUS CORD	1		
	A 15	LV40507-001A	INST SHEET	1		
	K I T	CHX99J-SCREW1	SCREW PARTS KIT	1	A12,A13	